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ABSTRACT

Designed to aid the elementary teacher in presenting energy conservation education as part of the regular classroom instruction, this guide contains activity sheets which are organized into 10-page sections numbered to indicate grade level. For example, first grade materials are on pages 10 to 19, second grade materials are on pages 20 to 29, and third grade materials are on pages 30 to 39. Pages 1-9, appropriate for kindergarten, have pictures to be colored in addition to a puzzle to make. The sections for grades 1-6 integrate language arts, science, social studies, and mathematics with energy topics. The majority of the activity sheets pertains to language arts and mathematics. Answers for the activity sheets and a page of energy-saving ideas for parents and teachers conclude this guide. (JW)

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ENERGY TECH·KNOWLEDGY

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CUPERTINO UNION SCHOOL DISTRICT

O 2 CURRICULUM

Dear Teachers,

The following materials were produced as part of the Energy Action in the Schools Program with the assistance of a grant from the Department of Energy. They are designed to aid you in including energy conservation education as part of your regular classroom instruction.

The pages are numbered to correspond with accepted grade level objectives. For example, first grade materials are included on pages 10 to 19, second grade materials on pages 20 to 29, third grade materials on pages 30 to 39, and so forth. You may wish to use materials other than those designated for your particular grade level depending on the ability levels of your students.

We hope these materials will enable you to help your students learn more about energy conservation as they will be the decision makers for all our futures.

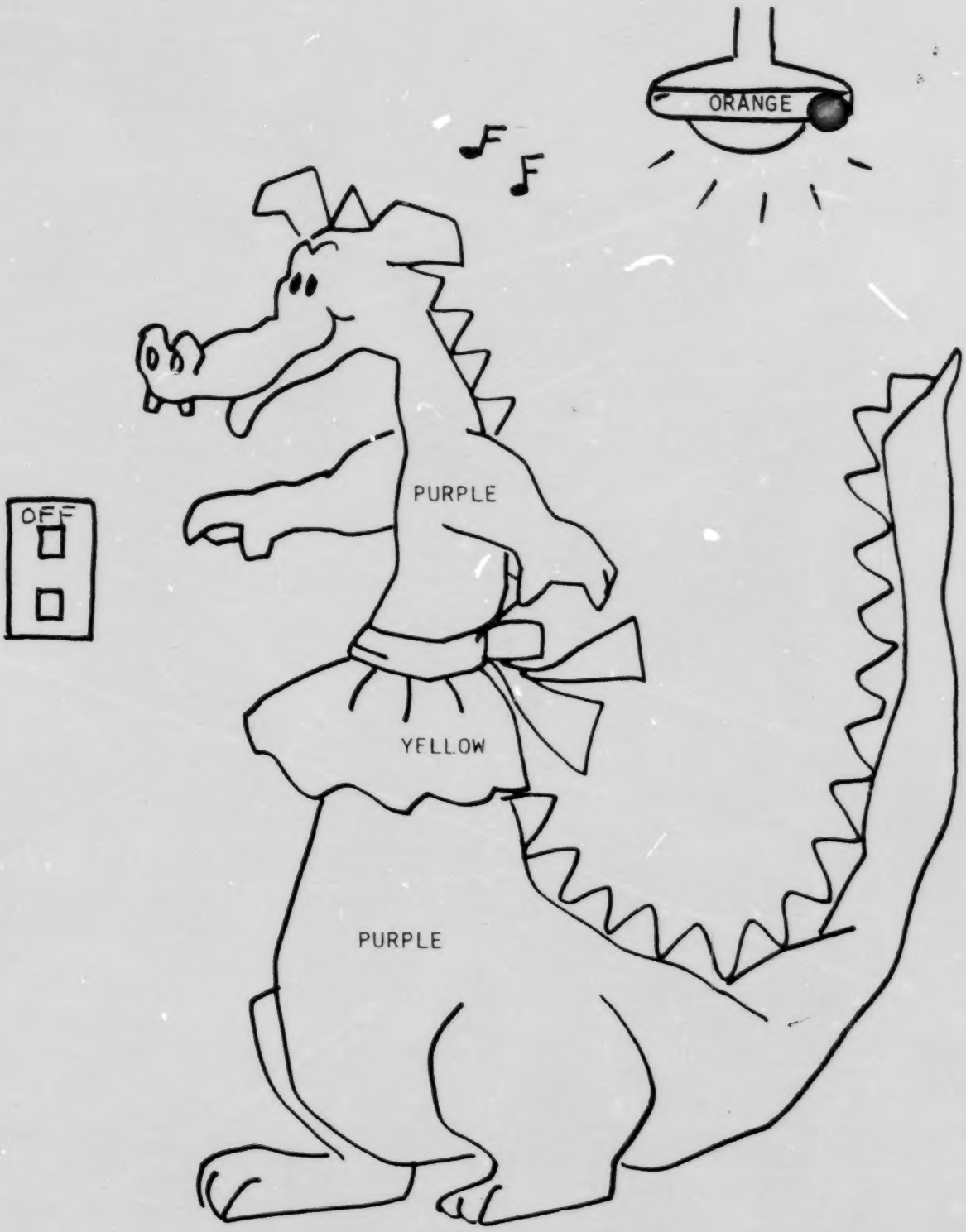
In addition, we encourage you to review the films, commercial materials and other programs listed in the Tech-Knowledgy Resource Guide.

The School Energy Committee

THIS IS DINA SHORE.

SHE SAVES ENERGY. YOU CAN SAVE ENERGY TOO.

EAIS



DINA TURNS THE LIGHTS OFF WHEN SHE LEAVES A ROOM.

COLOR THE PICTURE.

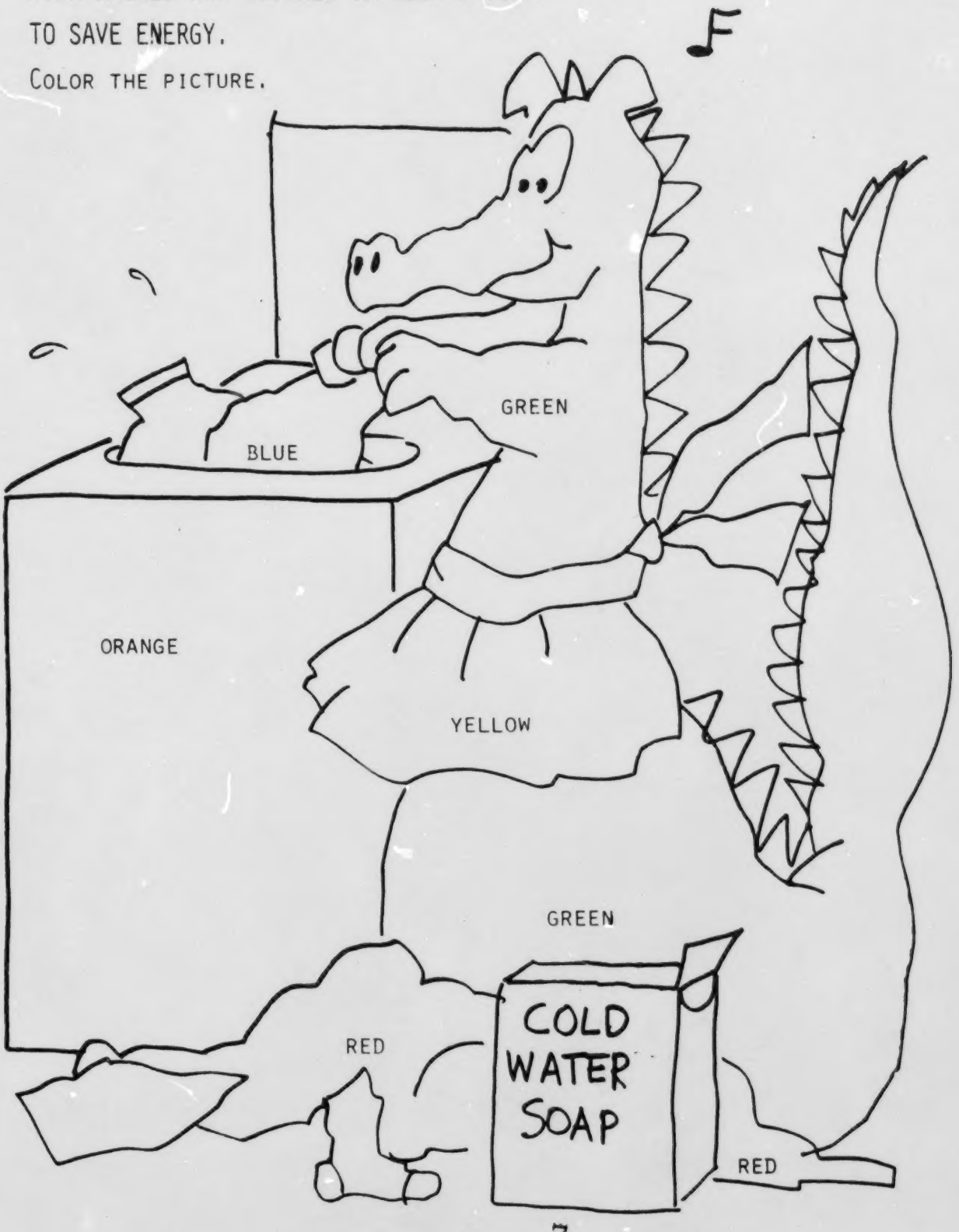
5

DINA WALKS TO THE STORE TO SAVE GASOLINE.

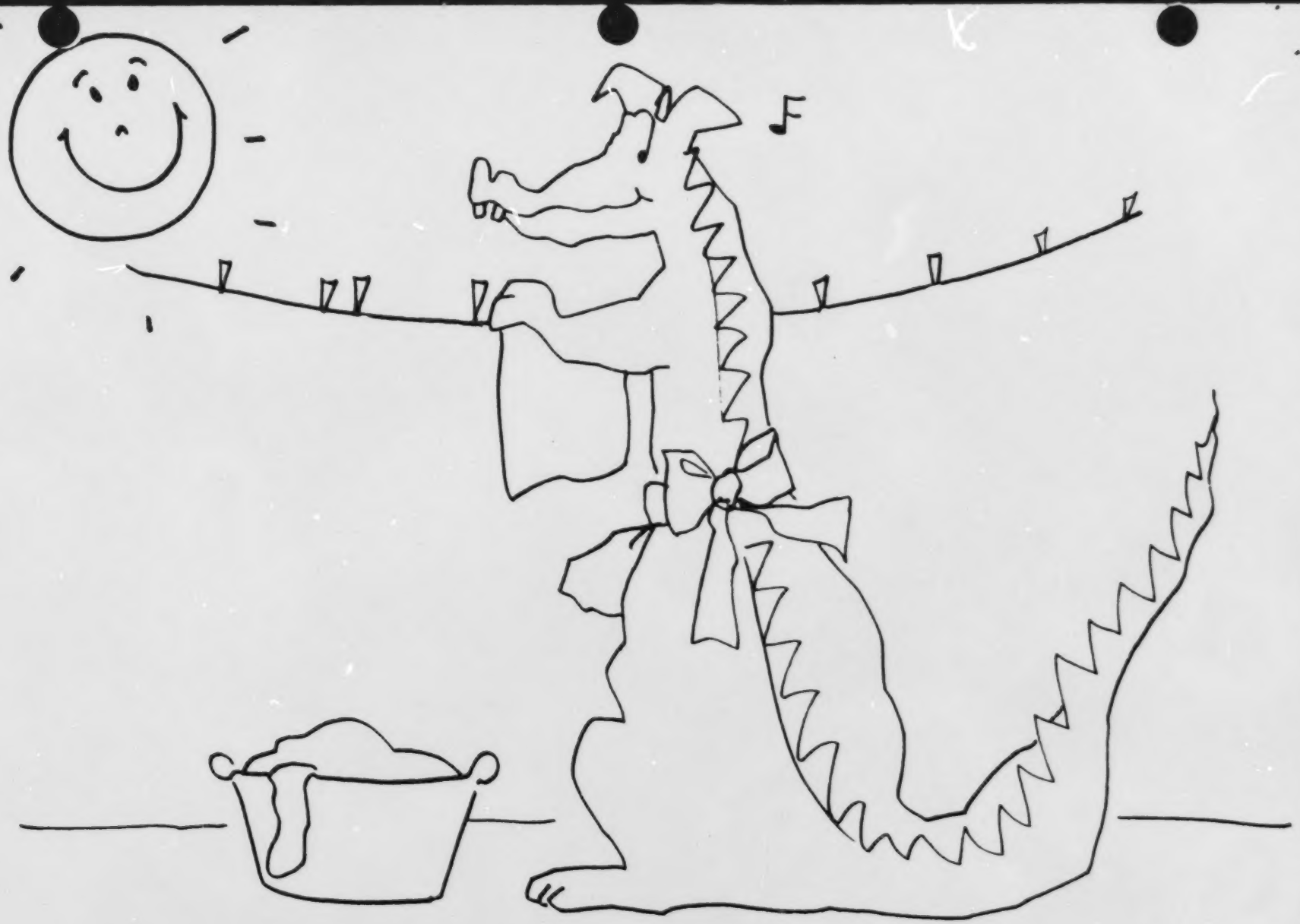
CUT ON THE DOTTED LINES TO MAKE YOUR OWN PUZZLE.

DINA WASHES HER CLOTHES IN COLD WATER
TO SAVE ENERGY.

COLOR THE PICTURE.



7

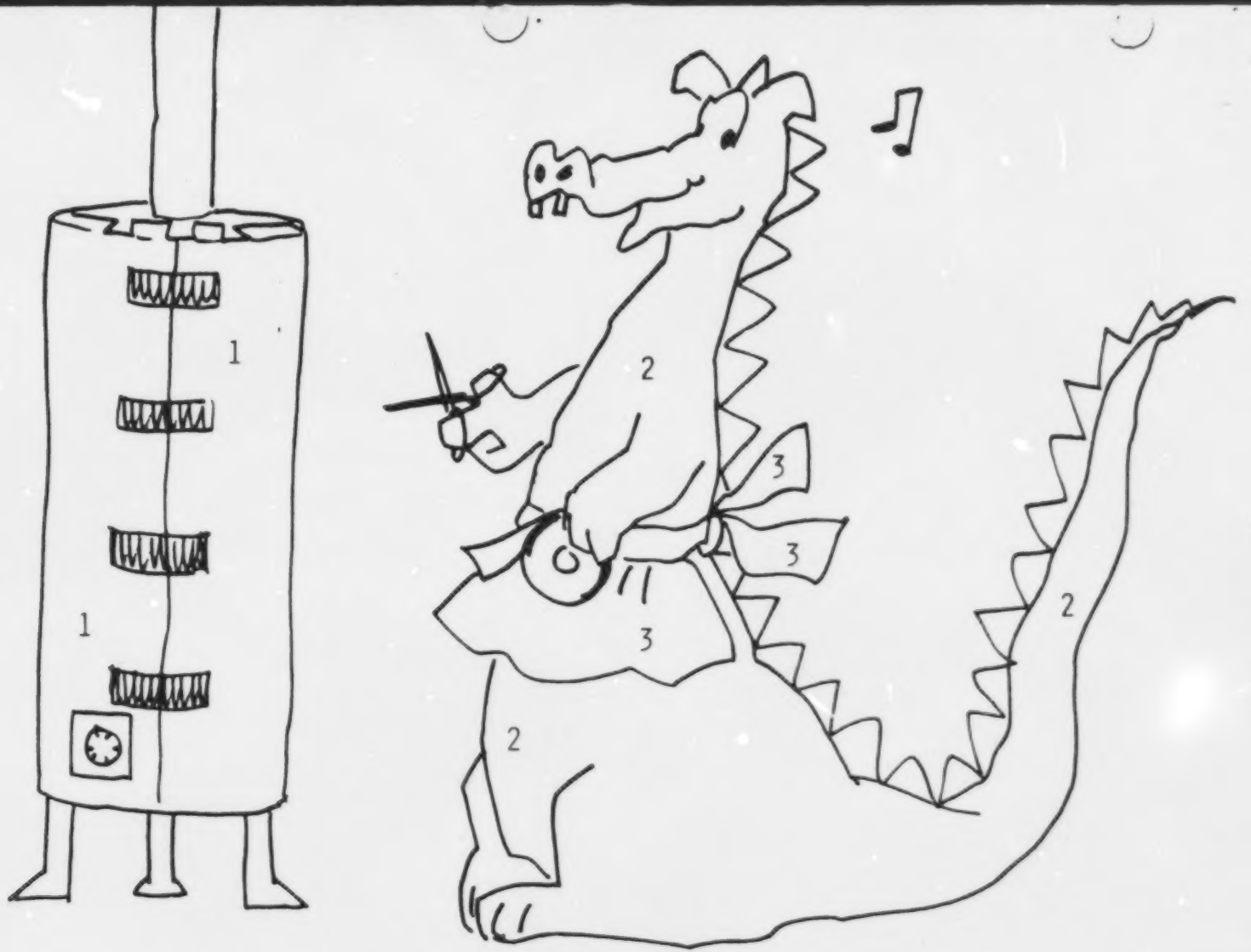


DINA HANGS HER CLOTHES OUTSIDE AND LETS THE SUN DRY THEM.

DRAW CLOTHES HANGING FROM THE CLOTHESLINE.

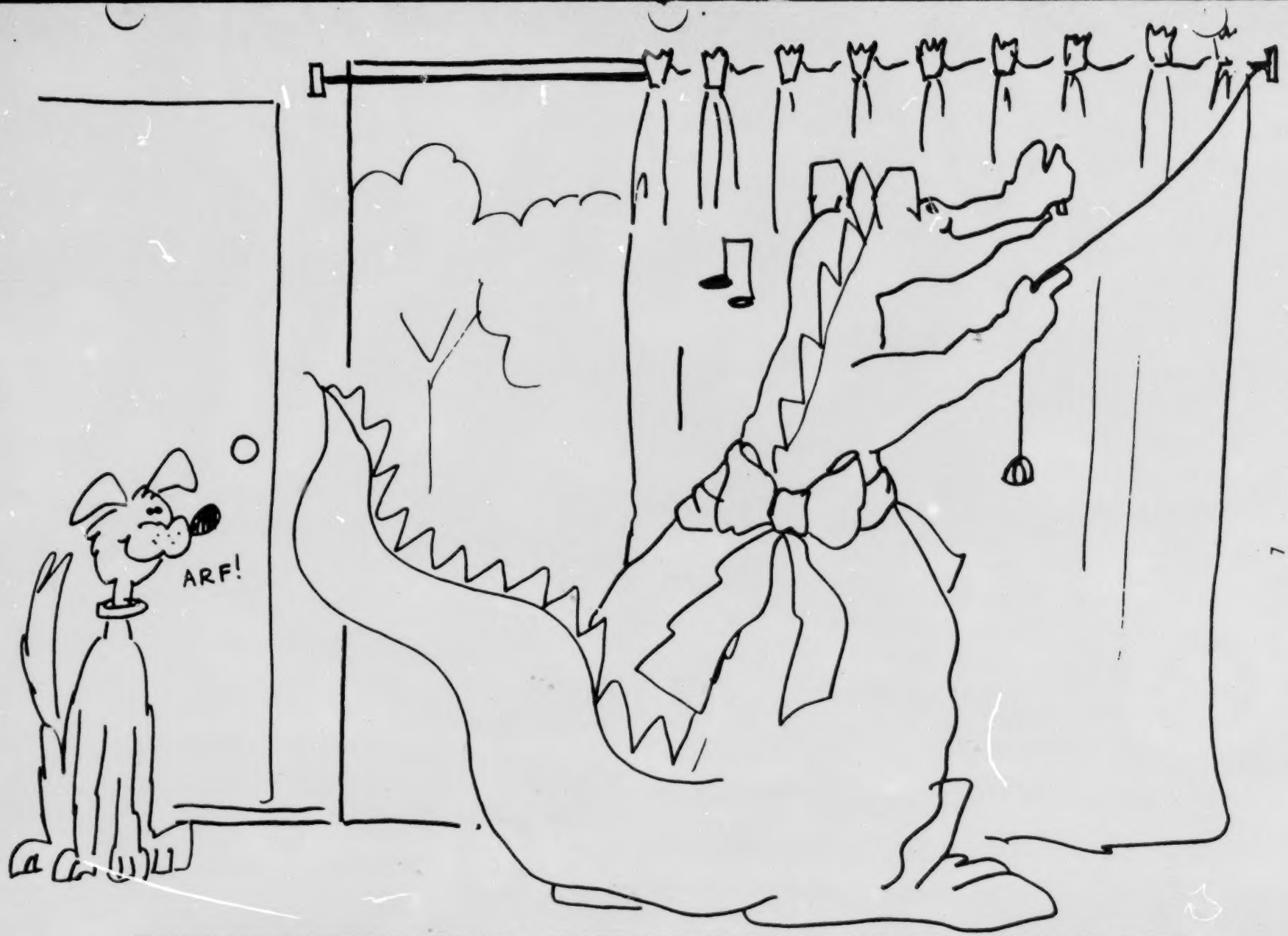
DINA WEARS WARM CLOTHES IN THE HOUSE AND KEEPS THE THERMOSTAT LOW.

COLOR THE 1'S BLUE.
COLOR THE 2'S GREEN.
COLOR THE 3'S YELLOW.
COLOR THE 4'S BROWN.



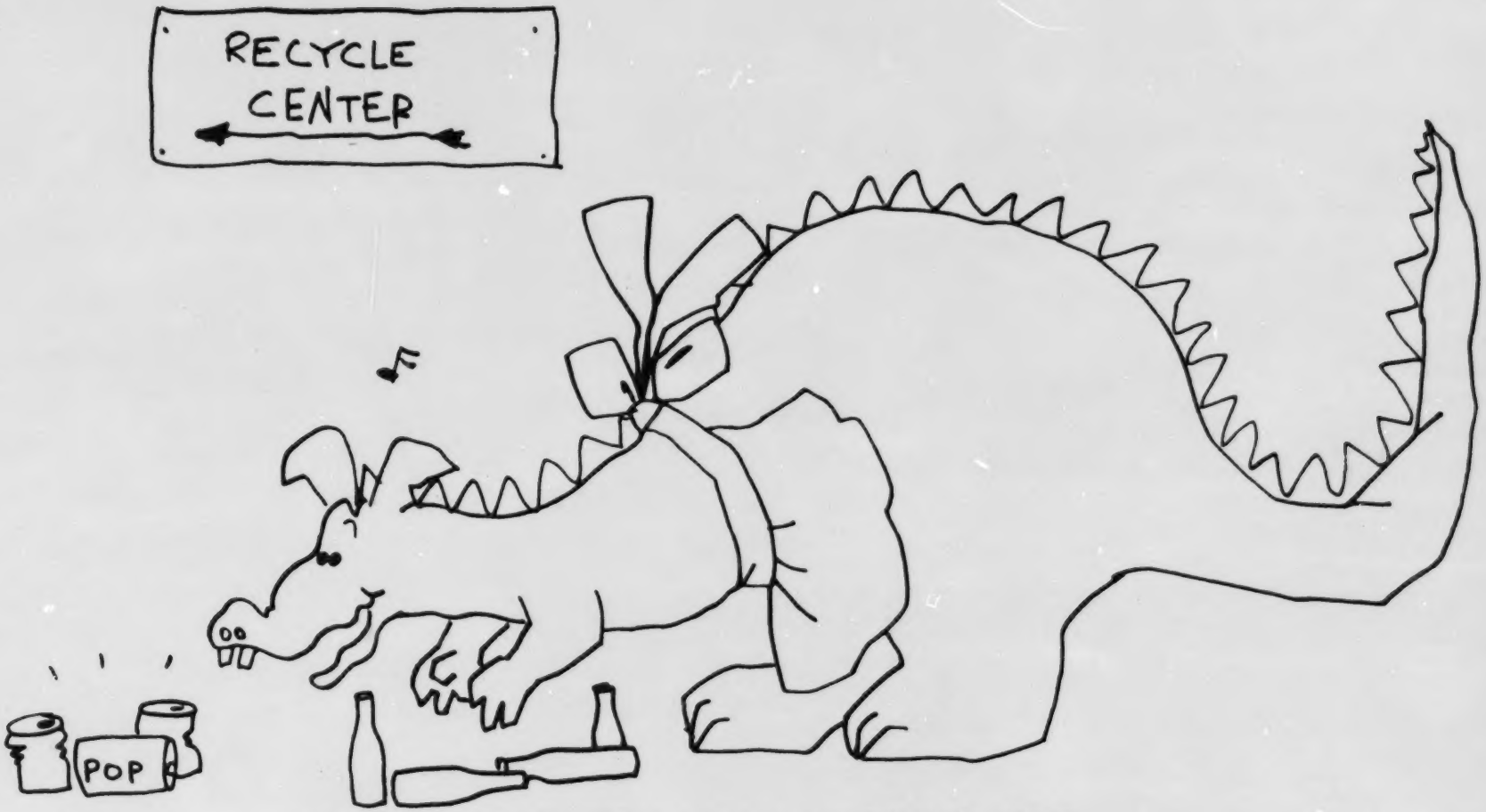
A WATER HEATER BLANKET SAVES ENERGY. DO YOU HAVE ONE ON YOUR WATER HEATER?

COLOR THE "1"S RED.
COLOR THE "2"S YELLOW.
COLOR THE "3"S BLUE.



CLOSING THE DRAPES HELPS TO KEEP DINA'S HOUSE WARM IN THE WINTER AND COOL IN THE SUMMER.

PUT AN X ON THE THINGS THAT BEGIN WITH "D".



DINA TAKES USED CANS AND BOTTLES TO THE RECYCLING CENTER.

HOW MANY CANS DO YOU SEE? _____

HOW MANY BOTTLES DO YOU SEE? _____

COLOR THE PICTURE.

WHEN DINA SAVES ENERGY, SHE ALSO SAVES MONEY.

COLOR THE PICTURE.

17

NAME _____

DIRECTIONS: COLOR THE 1'S RED
COLOR THE 2'S BLUE
COLOR THE 3'S GREEN
COLOR THE 4'S BROWN
COLOR THE 5'S YELLOW
COLOR THE 6'S PURPLE

CIRCLE THE CORRECT ANSWER.

WHICH SAVES MORE ENERGY? RIDING IN A CAR WALKING

NAME _____

WE CAN SAVE ENERGY IN MANY WAYS.
DRAW A LINE FROM THE SENTENCE TO THE PICTURE IT TELLS ABOUT.

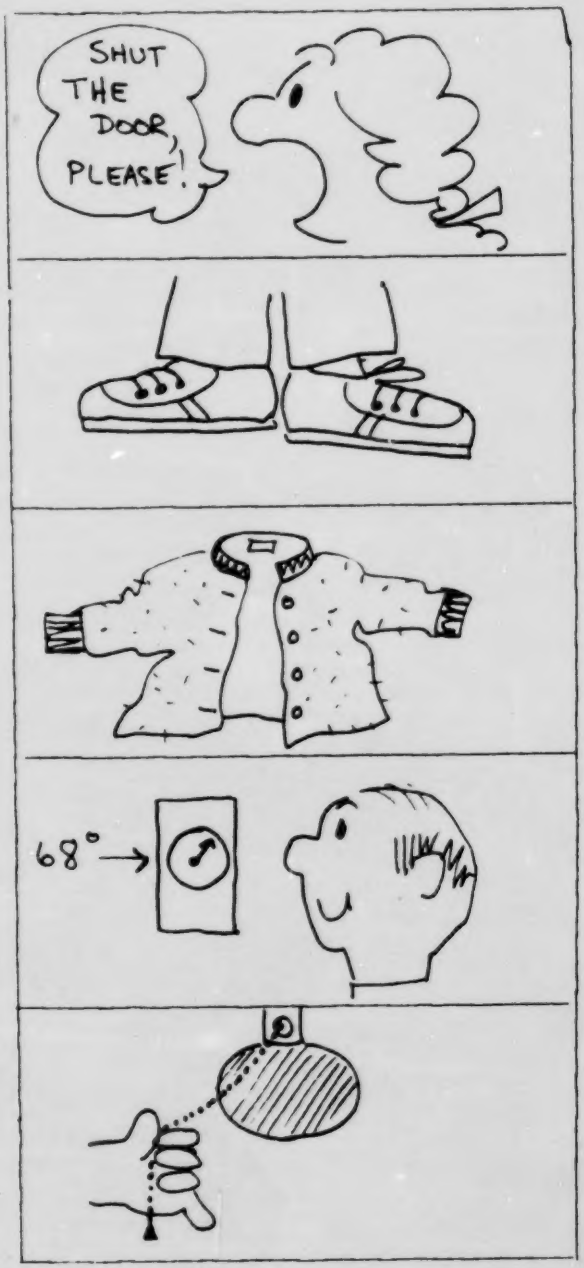
TURNING OUT LIGHTS SAVES ENERGY.

WALKING INSTEAD OF RIDING IN A CAR SAVES ENERGY.

TURNING DOWN THE THERMOSTAT SAVES ENERGY.

KEEPING THE REFRIGERATOR DOOR CLOSED SAVES ENERGY.

WEARING A SWEATER INSTEAD OF TURNING THE HEAT UP SAVES ENERGY.



NAME _____

DIRECTIONS: WRITE THE LETTER THAT COMES NEXT.

E F G ____

B C D ____

I J K ____

M N O ____

P Q R ____

A

S T U ____

B C D ____

B C D ____

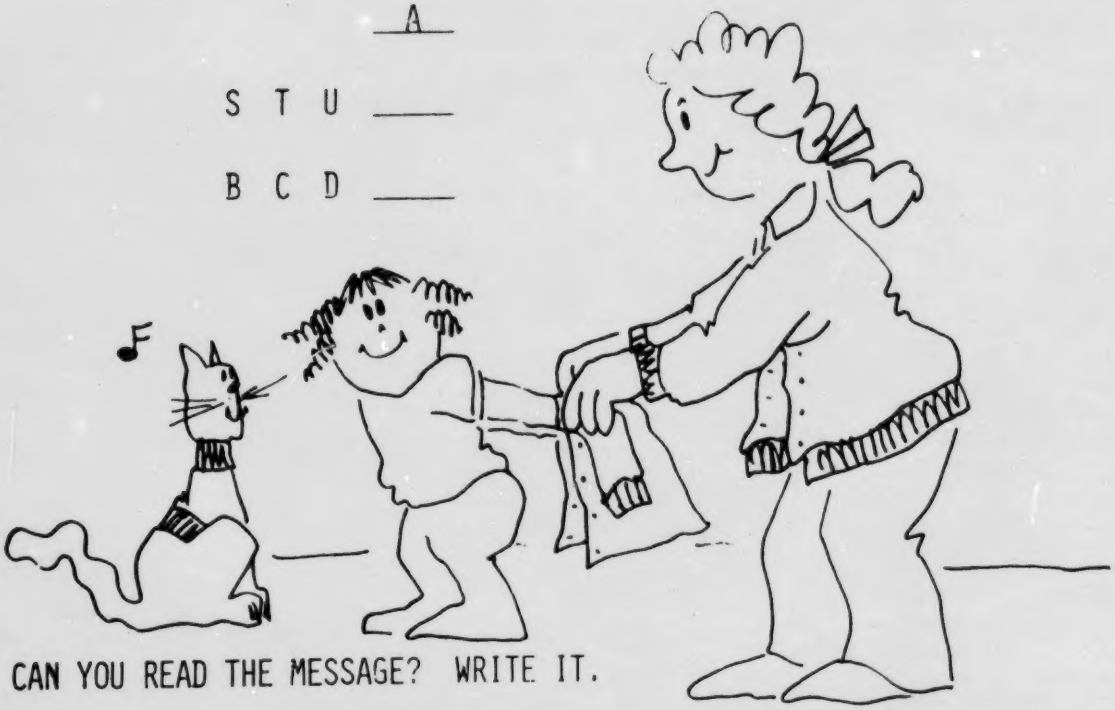
K L M ____

B C D ____

O P Q ____

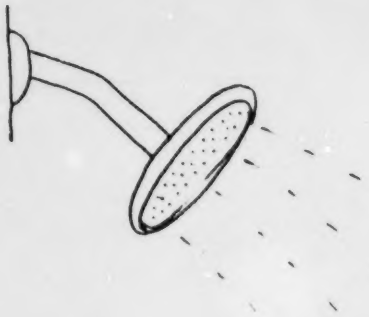
D E F ____

V W X ____



CAN YOU READ THE MESSAGE? WRITE IT.

___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___



NAME _____

EACH ALPHABET HAS A LETTER MISSING. WRITE THE MISSING LETTERS ON THE SPACES BELOW.

FIND OUT HOW YOU CAN SAVE ENERGY AT HOME.

1. A B C D E F G H I J K L M N O P Q R S U V W X Y Z
2. B C D E F G H I J K L M N O P Q R S T U V W X Y Z
3. A B C D E F G H I J L M N O P Q R S T U V W X Y Z
4. A B C D F G H I J K L M N O P Q R S T U V W X Y Z
5. A B C D E F G H I J K L M N O P Q R T U V W X Y Z
6. A B C D E F G I J K L M N O P Q R S T U V W X Y Z
7. A B C D E F G H I J K L M N P Q R S T U V W X Y Z
8. A B C D E F G H I J K L M N O P Q S T U V W X Y Z
9. A B C D E F G H I J K L M N O P Q R S U V W X Y Z
10. A B C D E F G H I J K L M N O P Q R T U V W X Y Z
11. A B C D E F G I J K L M N O P Q R S T U V W X Y Z
12. A B C D E F G H I J K L M N P Q R S T U V W X Y Z
13. A B C D E F G H I J K L M N O P Q R S T U V X Y Z
14. A B C D F G H I J K L M N O P Q R S T U V W X Y Z
15. A B C D E F G H I J K L M N O P Q S T U V W X Y Z
16. A B C D E F G H I J K L M N O P Q R T U V W X Y Z

ANSWER

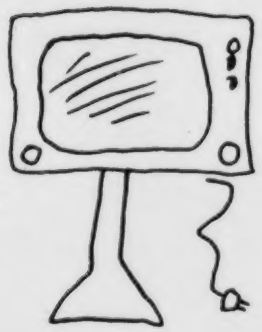
1	2	3	4	. 5	6	7	8	9
___	___	___	___	___	___	___	___	___

10	11	12	13	14	15	16
___	___	___	___	___	___	___

21

NAME _____

HERE ARE SOME WAYS TO SAVE ENERGY. PUT AN "X" ON THE THINGS YOU DO.



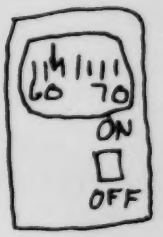
TURN OFF TV WHEN NOT WATCHING

WALK WHEN YOU CAN

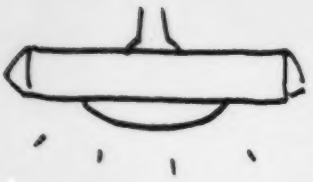
HURRY IN THE SHOWER

TURN OFF LIGHTS

USE THINGS AGAIN

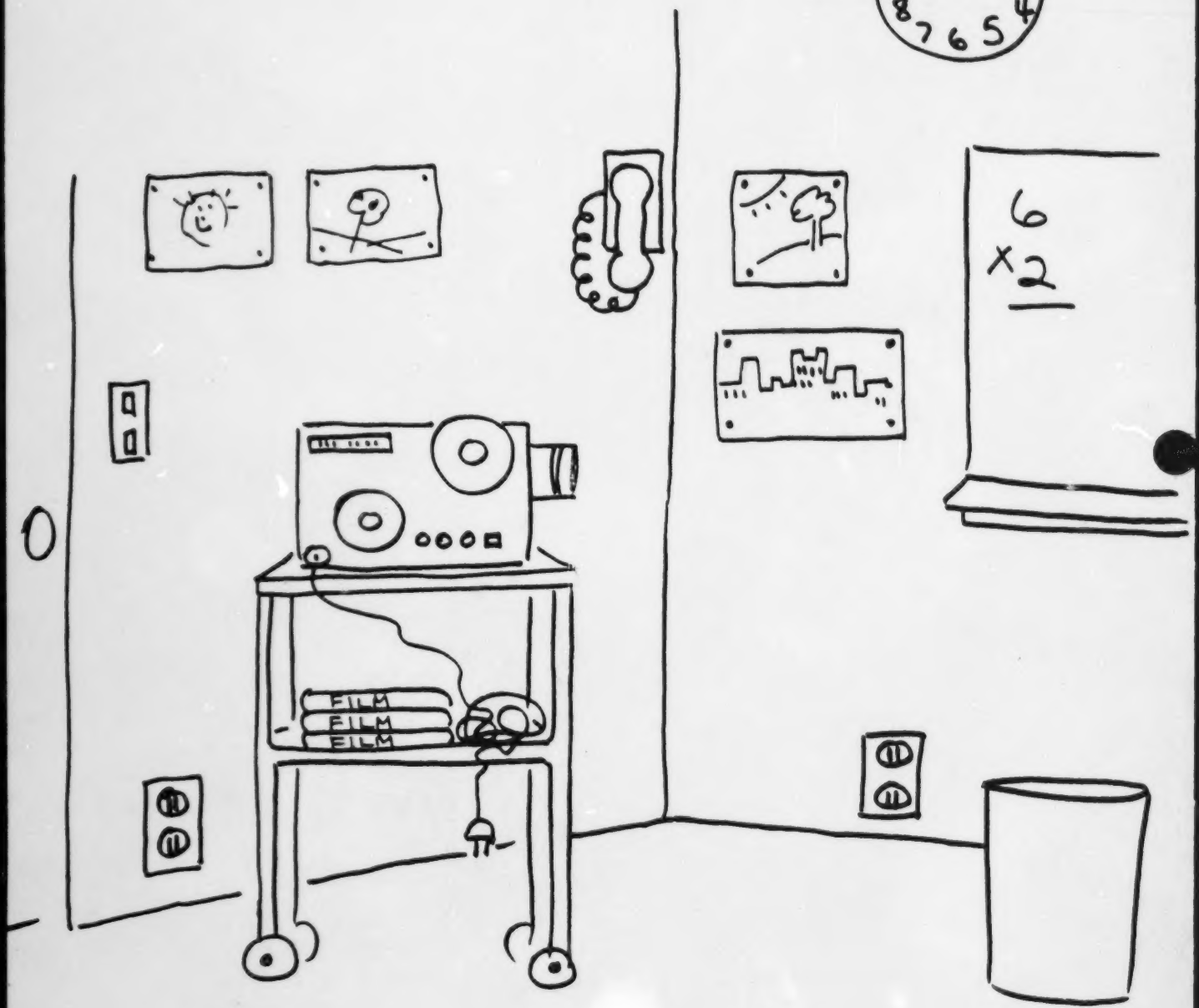


KEEP YOUR HEAT DOWN



NAME _____

FIND THE THINGS THAT USE ELECTRICITY IN THIS CLASSROOM. MAKE A CIRCLE AROUND THEM.

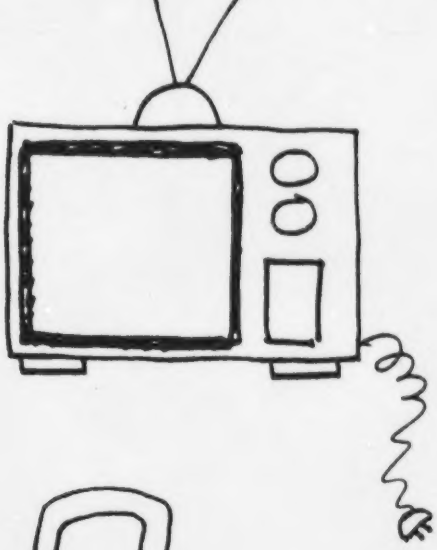


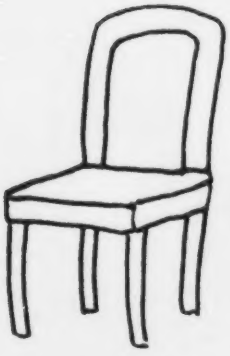
23

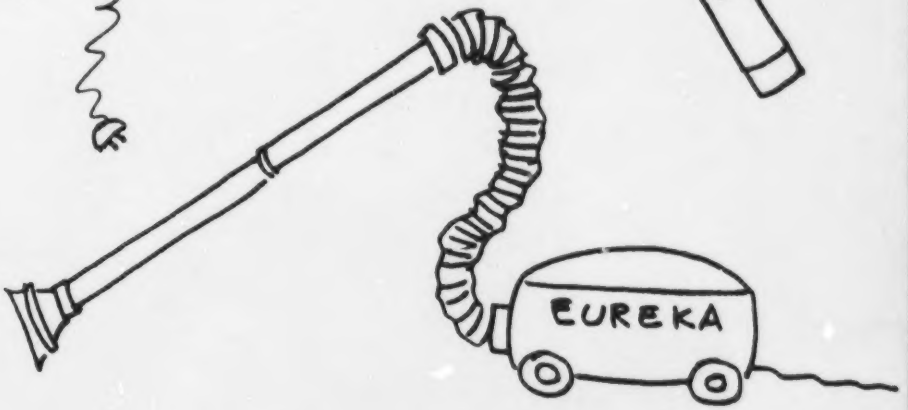
Science:

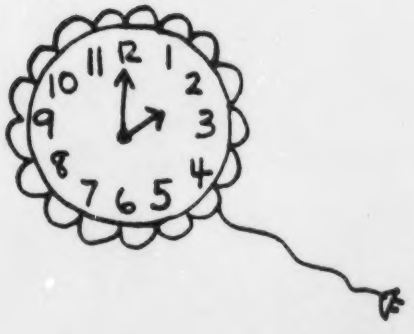
NAME

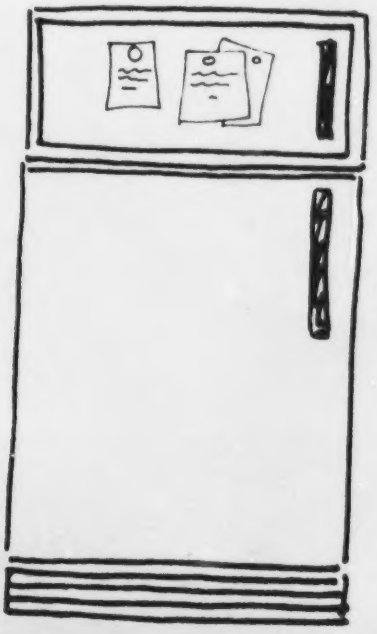
ELECTRICITY MAKES MANY THINGS GO.
COLOR THE THINGS THAT USE ELECTRICITY.

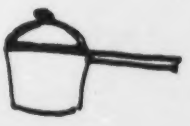












NAME _____

DIRECTIONS: DO THE PROBLEMS. WATCH THE SIGNS.

9 - 5 = ____ = S	3 + 5 = ____ = G	6 - 3 = ____ = I
7 + 2 = ____ = R	9 - 4 = ____ = V	7 - 6 = ____ = E
3 + 4 = ____ = A	9 - 7 = ____ = N	5 + 6 = ____ = O
3 - 3 = ____ = M	5 + 1 = ____ = Y	5 + 5 = ____ = T

WRITE THE LETTERS ON THE SPACES THAT MATCH YOUR ANSWERS.

4	7	5	3	?	8	1	2	1	9	8	6	

4	7	5	1	4	0	11	2	1	6	10	11	11	

EAIS

NAME _____

THE SUN, WIND, AND WATER GIVE US FREE ENERGY.

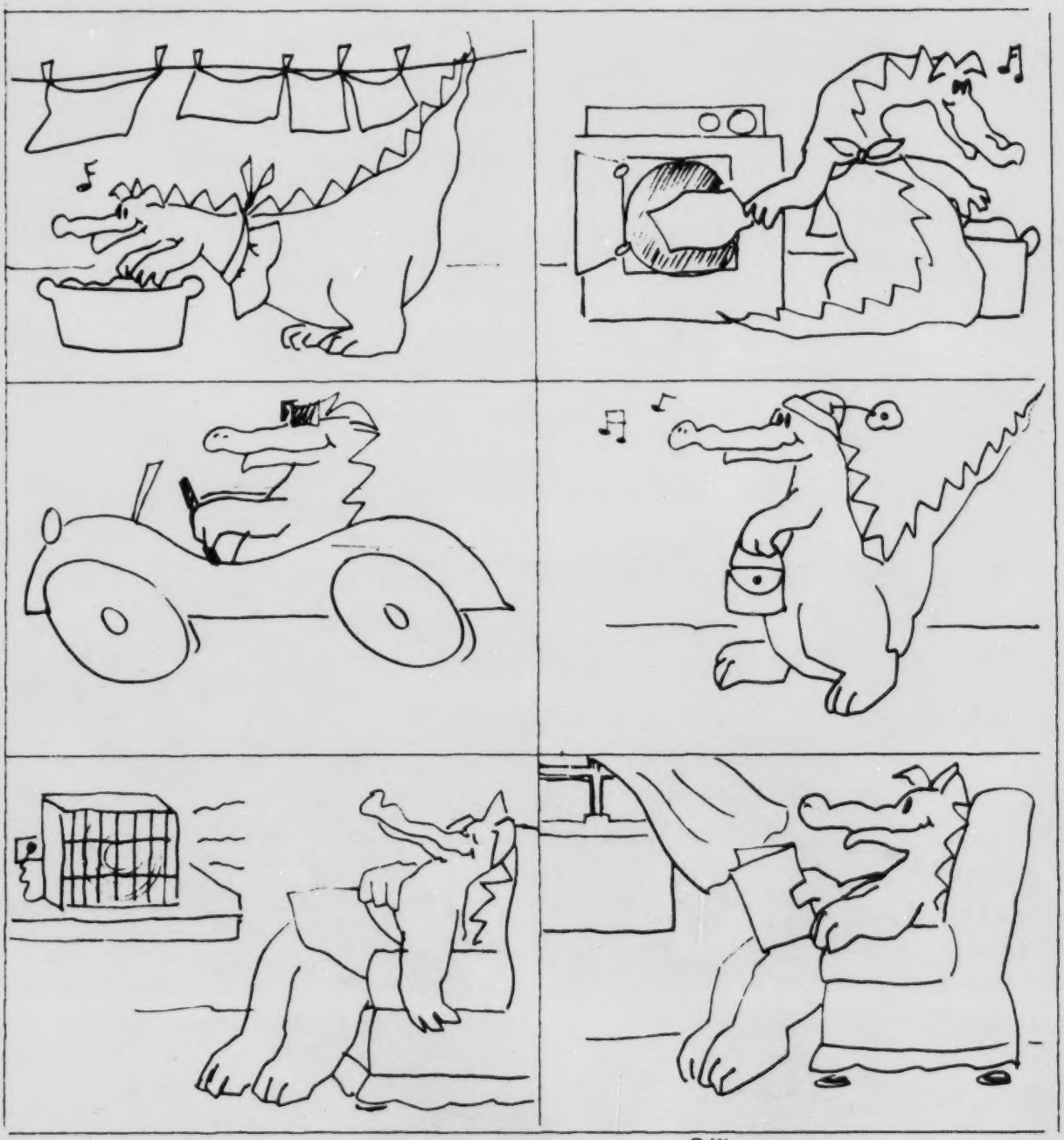
CONNECT THE DOTS TO SEE HOW WE CAN GET ENERGY FROM THE WIND.

NAME _____

SOME ENERGY IS FREE.

SOME ENERGY IS NOT FREE. IT COSTS MONEY.

COLOR THE PICTURES THAT SHOW DINA USING FREE ENERGY.



LA: Alphabetical order

NAME _____

Directions: Find the word that comes first in ABC order.

1. 0 wood
   0 we
   0 white

2. 0 sun
   0 stove
   0 should

3. 0 all
   0 apple
   0 animal

4. 0 tune
   0 try
   0 tub

5. 0 train
   0 trouble
   0 to

6. 0 save
   0 spend
   0 see

7. 0 extra
   0 error
   0 energy

Write the words you chose on the lines below.

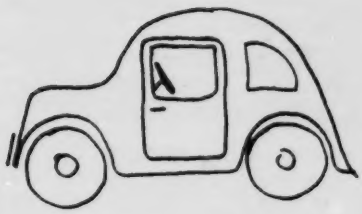
_____ 1 _____ 2 _____ 3 _____ 4 _____ 5

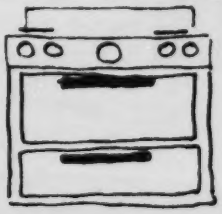
_____ 6 _____ 7 .

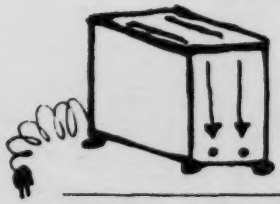
NAME _____

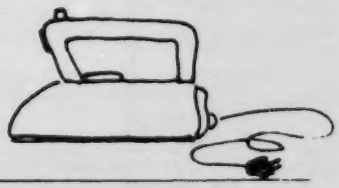
ENERGY CAN MAKE THINGS MOVE.
ENERGY CAN MAKE LIGHT.
ENERGY CAN MAKE HEAT.

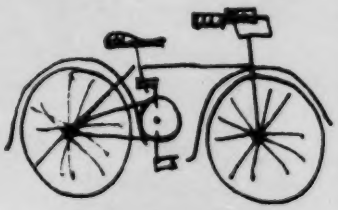
WRITE HEAT, LIGHT, OR MOVE UNDER EACH PICTURE TO SHOW WHAT KIND OF ENERGY IS BEING USED.









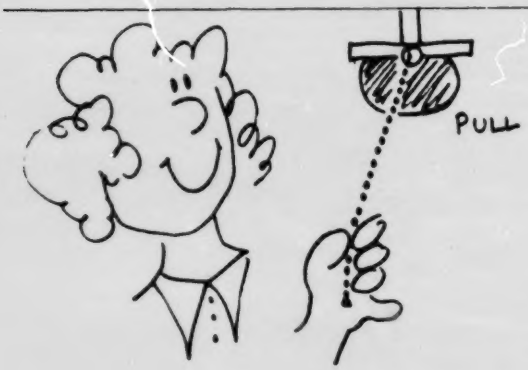


29

NAME _____

MANY PEOPLE ARE TRYING TO SAVE ENERGY.

DIRECTIONS: LOOK AT EACH PICTURE. THEN DRAW A LINE UNDER THE ANSWERS TO THE QUESTIONS. COLOR THE PICTURES.



HOW IS MARY HELPING?

SHE IS PAINTING THE LIGHT.

SHE IS TURNING OFF THE LIGHT.

SHE IS STANDING ON A CHAIR.

HOW IS JIM HELPING?

HE IS WALKING TO SCHOOL.

HE IS RIDING IN A CAR.

HE IS EATING A HAMBURGER.

HOW IS MIKE HELPING?

HE IS COOKING DINNER.

HE IS GOING SWIMMING.

HE IS TAKING A SHORT SHOWER.

NAME _____

DIRECTIONS: EACH ALPHABET HAS A LETTER MISSING. WRITE THE MISSING LETTERS ON THE SPACES BELOW.

FIND OUT HOW YOU CAN SAVE ENERGY AT HOME.

1. A B C D E F G H I J K L M N O P Q R S T U V X Y Z
2. A B C D F G H I J K L M N O P Q R S T U V W X Y Z
3. B C D E F G H I J K L M N O P Q R S T U V W X Y Z
4. A B C D E F G H I J K L M N O P Q S T U V W X Y Z
5. B C D E F G H I J K L M N O P Q R S T U V W X Y Z
6. A B C D E F G H I J K L M N O P Q R T U V W X Y Z
7. A B C D E F G H I J K L M N O P Q R S T U V X Y Z
8. A B C D F G H I J K L M N O P Q R S T U V W X Y Z
9. B C D E F G H I J K L M N O P Q R S T U V W X Y Z
10. A B C D E F G H I J K L M N O P Q R S U V W X Y Z
11. A B C D F G H I J K L M N O P Q R S T U V W X Y Z
12. A B C D E F G H I J K L M N O P Q S T U V W X Y Z

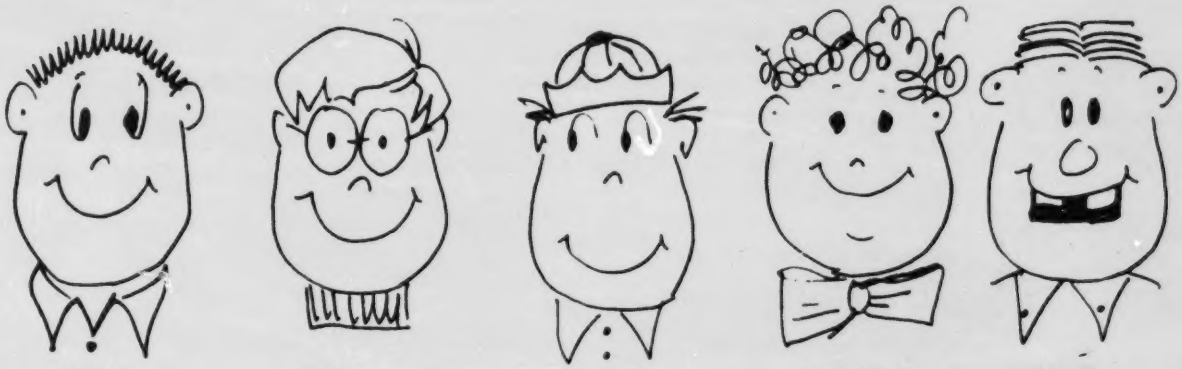
ANSWER

1	2	3	4	5	6	7	8	9	10	11	12

NAME _____

THIS IS THE ENERGY PATROL.
THEY SAVE ENERGY AT SCHOOL.

DIRECTIONS: READ THE STORY. WRITE THE CORRECT NAME.



1. THE FIRST BOY TURNS OUT LIGHTS.
   HIS NAME IS _____.

2. THE THIRD BOY CLOSES THE WINDOWS ON COLD DAYS.
   HIS NAME IS _____.

3. THE FIFTH BOY SHUTS DOORS.
   HIS NAME IS _____.

4. THE SECOND BOY CHECKS THE THERMOSTATS.
   HIS NAME IS _____

5. THE FOURTH BOY GIVES AWARDS TO THE ROOM THAT DOES THE BEST JOB.
   HIS NAME IS _____.

LA: Spelling

NAME _____

DIRECTIONS: A WORD IN EACH SENTENCE IS ALL MIXED UP. UNSCRAMBLE THE LETTERS AND WRITE THE WORD CORRECTLY ON THE BLANK SPACE.

1. WE USE ENERGY EVERY YAD. _____

2. WE GET SOLAR POWER FROM THE UNS. _____

3. WINDMILLS CAN MAKE NEERYG. _____

4. MUCH OF OUR ELECTRICITY COMES FROM RUSHING TAWRE. _____

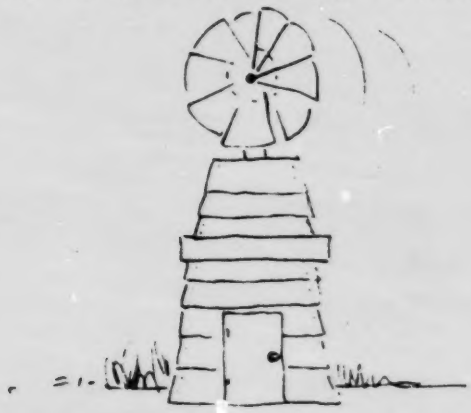
5. MOST OF OUR ENERGY COMES FROM FOSSIL FSLUE. _____

6. THE THREE FOSSIL FUELS ARE COAL, OIL, AND NATURAL SAG. _____

7. WE SHOULD BE CAREFUL NOT TO WASTE OUR NATURAL RESECRUOS.

_____ _____

WRITE THE WORD UNDER THE PICTURE.



_____

_____

NAME _____

LEFT AND RIGHT
UP AND DOWN

T	(D)	(C)	A	Y	E	N
A	R	A	B	C	(M)	O
P	E	H	T	T	O	V
E	I	G	Y	(S)	K	(E)
S	(L)	M	G	R	E	N

1. SOME PEOPLE USE ELECTRICITY FOR THIS EVERYDAY.
   (S), UP, RIGHT, RIGHT, DOWN. ___ ___ ___ ___ ___

2. WE CAN SAVE ENERGY BY WALKING INSTEAD OF USING THIS.
   (C), DOWN, LEFT. ___ ___ ___

3. ALWAYS TURN THIS OFF WHEN YOU LEAVE A ROOM.
   (L), UP, RIGHT, UP, RIGHT. ___ ___ ___ ___ ___

4. CLOSING THESE ON HOT DAYS WILL KEEP THE HEAT OUT OF THE HOUSE.
   (D), DOWN, LEFT, DOWN, DOWN, DOWN. ___ ___ ___ ___ ___ ___

5. WE ALL NEED TO SAVE THIS.
   (E), DOWN, LEFT, LEFT, LEFT, UP. ___ ___ ___ ___ ___ ___

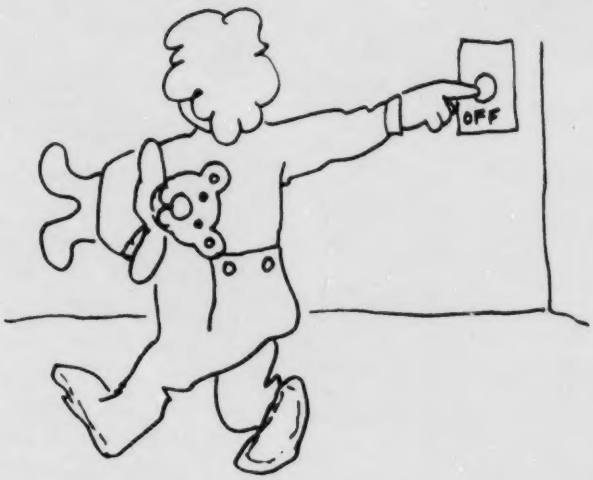
6. SAVING ENERGY WILL ALSO SAVE YOU THIS.
   (M), RIGHT, UP, LEFT, LEFT. ___ ___ ___ ___ ___

Math: Place Value

NAME _____

DIRECTIONS: WRITE THE NUMBER THAT MEANS THE SAME AS THE NUMBERS IN THE BOXES.

100 + 40 + 7	= ____ = E	
400 + 30 + 6	= ____ = R	
80 + 2	= ____ = Y	



300 + 10 + 8	= ____ = D	
10 + 5	= ____ = N	
700 + 90 + 9	= ____ = S	

500 + 50 + 5	= ____ = A	
200 + 70 + 9	= ____ = G	
70 + 6	= ____ = V	

USE YOUR ANSWERS TO COMPLETE THE SENTENCE.

THESE ARE WAYS WE CAN ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ .

799 555 76 147 147 15 147 436 279 82

35

EAIS

Math: Addition

Name _____

DIRECTIONS: Do the problems. Use your answers to read the message.

4 + 5 = _____ T	3 + 3 = _____ W	4 + 6 = _____ S	8 + 4 = _____ H
3 + 1 = _____ O	5 + 3 = _____ U	6 + 5 = _____ R	1 + 1 = _____ A
3 + 2 = _____ N	5 + 2 = _____ E	2 + 1 = _____ D	4 + 3 = _____ E

TO SAVE ENERGY

_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
9	8	11	5	9	12	7	12	7	2	9	3	4	6	5	

_	_	_	_	_	_	_	_	_	_	_	_
6	7	2	11	2	10	6	7	2	9	7	11

Math: Number Sequence

Name _____

DIRECTIONS: FILL IN THE MISSING NUMBERS.

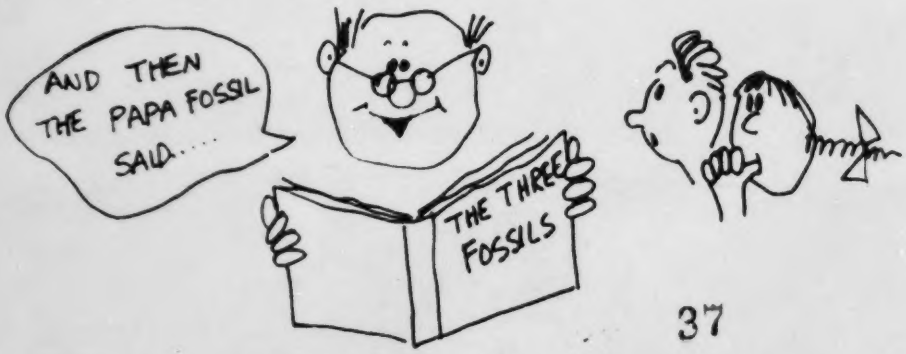
1	2	3	L	5	6	7	N	9	10
S	12	13	14	A	16	17	18	C	20
21	I	23	24	25	T	27	28	29	O
31	32	G	34	35	36	R	38	U	40

ANSWER THE QUESTION BELOW BY FILLING IN THE SPACES.

USE THE LETTERS IN THE BOXES THAT MATCH THE NUMBERS UNDER EACH SPACE.

WE USE FOSSIL FUELS TO MAKE ENERGY.
WHAT ARE THE THREE FOSSIL FUELS?

			,					,	AND		
30	22	4		19	30	15	4				
8	15	26	39	37	15	4		33	15	11	.



37

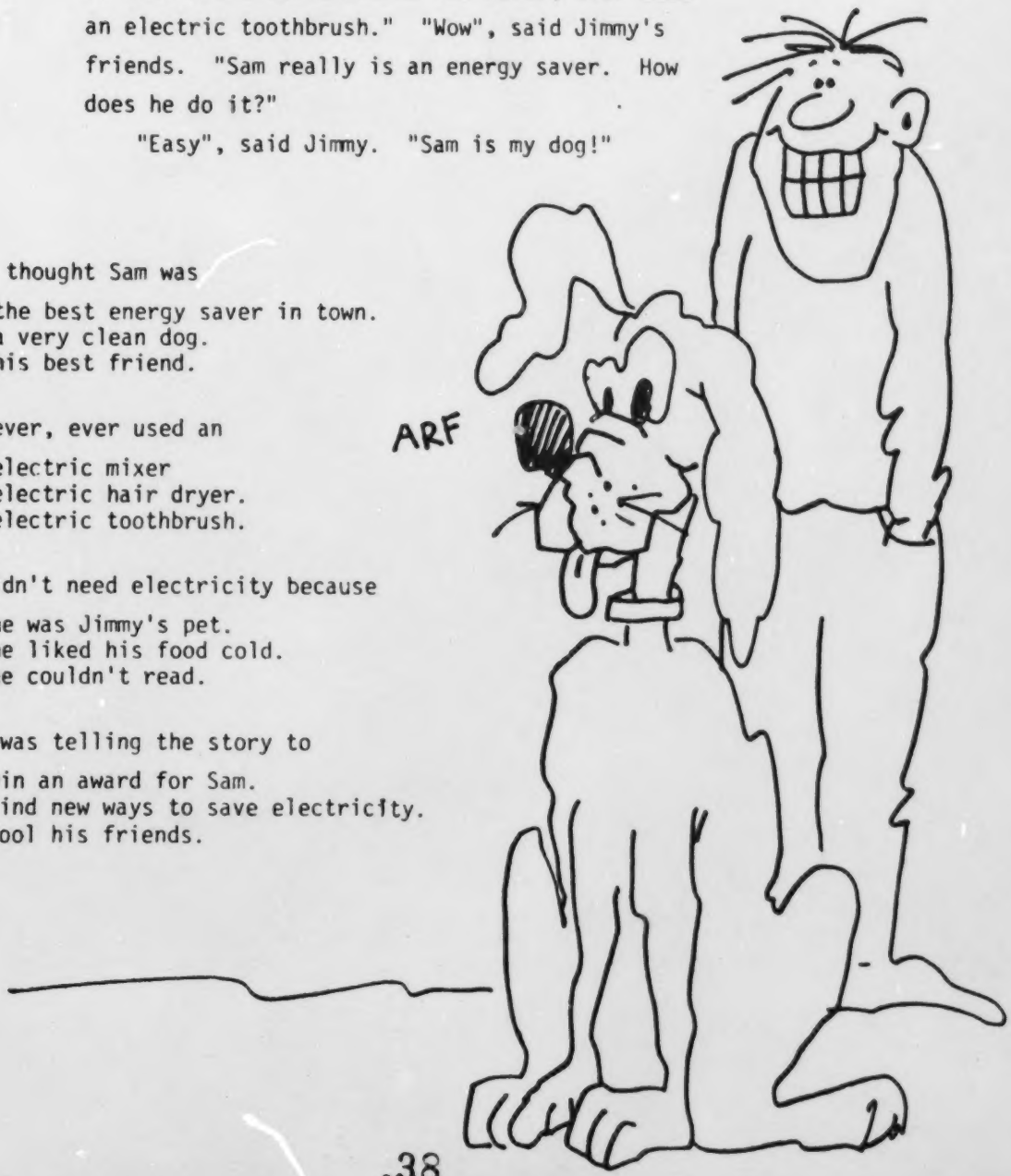
LA: *Literal comprehension*

NAME _____

Directions: Read the story and then answer the questions.

"The best energy saver in town lives at my house", said Jimmy. "How do you know?" asked his friends. "Well, Sam never leaves the lights on," said Jimmy. "In fact, he never even turns them on. He doesn't cook his food or wash his clothes and he has never, ever used an electric toothbrush." "Wow", said Jimmy's friends. "Sam really is an energy saver. How does he do it?"

"Easy", said Jimmy. "Sam is my dog!"



1. Jimmy thought Sam was
   - 0 the best energy saver in town.
   - 0 a very clean dog.
   - 0 his best friend.

2. Sam never, ever used an
   - 0 electric mixer
   - 0 electric hair dryer.
   - 0 electric toothbrush.

3. Sam didn't need electricity because
   - 0 he was Jimmy's pet.
   - 0 he liked his food cold.
   - 0 he couldn't read.

4. Jimmy was telling the story to
   - 0 win an award for Sam.
   - 0 find new ways to save electricity.
   - 0 fool his friends.

cAIS

LA: *Capitalization*

NAME _____

Directions: Find the part of the sentence that should have capital letters.

1. A man / named benjamin franklin / discovered electricity.
   0 0 0

2. The pacific gas and electric company / produces electricity / for our homes.
   0 0 0

3. we pay the company / for the amount of electricity / that we use.
   0 0 0

4. Electricity is the type of energy / used mostly / in the smith's house.
   0 0 0

5. The smith family / knows lots of ways / to save energy.
   0 0 0

6. They wash their clothes / in cold water / in their maytag washing machine.
   0 0 0

7. washing in cold water / saves the energy needed / to heat water.
   0 0 0

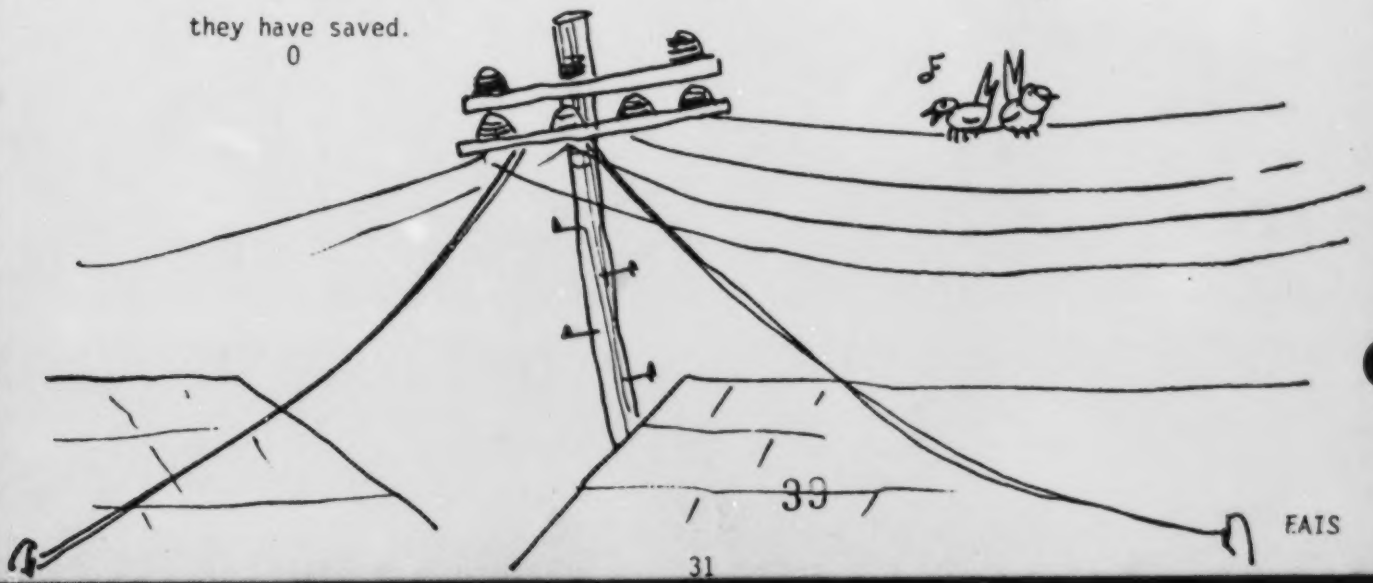
8. Their house / on green street / is fully insulated.
   0 0 0

9. "We always remember / to turn lights off," / said bob smith.
   0 0 0

10. All the smith children / take short showers / instead of baths.
    0 0 0

11. The smith family / uses less energy / than the stevens family.
    0 0 0

12. They are going to go / to the cupertino oaks theater / with the money /
    0 0 0
    they have saved.
    0



Name _____

Directions: These students have thought of ideas on how to save energy and stop waste. The last word of each idea is missing. Use the following words to complete the sentences.

drain paper bottles recycling lights house school

Instead of having your Mom drive you, walk to _____.
Save newspapers for _____.
Whenever you can, use both sides of the _____.
Buy drinks in returnable _____.
Catch rainwater in a bucket to use for plants in the _____.
Use a cup at the water fountain. Otherwise most of the water goes down the _____.
When you leave the room, turn off the _____.

Name _____

DIRECTIONS: Write the right homonym in each space.

1. If we (waist, waste) _____ our natural resources, the supply will run out.

2. Fossil fuels will (not, knot) _____ last forever.

3. This is because (new, knew) _____ fossil fuels are not being made as fast as we are using them.

4. P[illegible]le are learning how to store solar energy (sew, so) _____ we can use it.

5. We (no, know) _____ that geothermal energy comes from underground steam.

6. Burning coal causes a (grate, great) _____ amount of air pollution.

7. Many people (see, sea) _____ nuclear energy as the power source of the future.

8. (Some, Sum) _____ companies are burning garbage to provide energy.

9. Water flowing (threw, through) _____ dams creates hydro power.

10. The best (way, weigh) _____ to save energy is to use it wisely.

41

Name _____

DIRECTIONS: Mrs. Smith's class is having a spelling bee.
Cross out the incorrect words to find out which team spelled more words correctly.

JENNY'S TEAM	MARILYN'S TEAM
1. energy	1. energee
2. electricity	2. elactricty
3. powre	3. power
4. insulation	4. insolateshun
5. thermostate	5. thermostat
6. lites	6. lights
7. cunserve	7. conserve
8. recycal	8. recycle
9. fuel	9. fule
10. furnice	10. furnace

How many words did Jenny's team spell correctly? _____

How many words did Marilyn's team spell correctly? _____

Which team won the spelling bee? _____

Write the words correctly.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

LA: Alphabetical Order

Name _____

DIRECTIONS: The names of ten objects that use electricity are hidden in this word puzzle. How many can you find?

radio lights stove dishwasher stereo fan
television refrigerator freezer hair dryer

A	C	T	D	W	M	B	V	U	E	M	M
B	O	E	X	V	K	O	O	R	C	W	I
D	J	L	I	G	H	T	S	X	Z	W	Q
I	W	E	L	N	N	E	F	A	N	X	M
S	A	V	E	P	R	Q	R	O	O	S	T
H	A	I	R	D	R	Y	E	R	I	S	P
W	A	S	T	E	A	O	E	N	N	S	B
A	P	I	W	W	D	M	Z	R	B	T	V
S	M	O	O	T	H	I	F	E	R	R	E
H	E	N	T	T	O	I	R	X	X	R	L
E	C	D	P	T	X	S	T	O	V	E	Z
R	E	F	R	I	G	E	R	A	T	O	R

Write the words in alphabetical (ABC) order.

1. _____ 6. _____

2. _____ 7. _____

3. _____ 8. _____

4. _____ 9. _____

5. _____ 10. _____

LA: Verb Usage

Name _____

DIRECTIONS: Read the sentences. Circle the correct word.

1. There (is, are) many ways that we can save energy.
2. Make sure that you (turn, turns) out the light when you leave a room.
3. Bicycle to school instead of (asked, asking) for a ride.
4. Do not (left, leave) the door open when the furnace is on.
5. (Open, opened) the blinds so the sun can warm up your room.
6. Wear a sweater instead of (turned, turning) the thermostat higher.
7. Wait until the dishwasher is full before (starting, started) it.
8. Don't leave the refrigerator door open when you are (look, looking) for a snack.
9. (Taking, Take) short showers instead of baths.
10. Insulating your house will (kept, keep) your energy bills lower.
11. Turn off the TV when you (leaving, leave) the room.
12. You can (recycle, recycling) paper at home and at school.
13. (Closing, Close) the drapes in the summer time to keep the heat out of the house.
14. Wear fewer clothes in the summer instead of (turns, turning) the air conditioner up.
15. Remember that saving energy will (save, saved) our natural resources and money.

Math: Using Charts

Name _____

DIRECTIONS: Use the chart to answer the questions.

ENERGY USERS

Average Cost to Operate for One Year

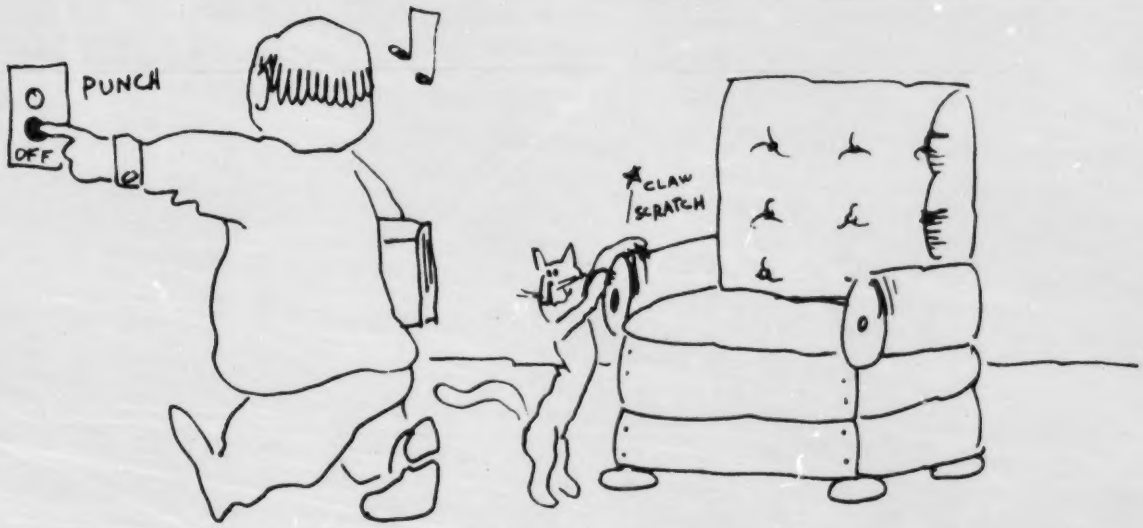
Less than $10	From $10 to $50	More than $50
toaster	washing machine	refrigerator
sewing machine	dishwasher	water heater
hair dryer	color TV	home lights
electric toothbrush	oven	home heater

READ THE QUESTIONS. CIRCLE THE CORRECT ANSWER.

1.	Which cost more to operate?	toaster	oven
2.	Which cost less to operate?	home lights	dishwasher
3.	Which cost less to operate?	hair dryer	color TV
4.	Which cost more to operate?	sewing machine	refrigerator
5.	Which cost less to operate?	home heater	color TV
6.	Which cost more to operate?	washing machine	water heater
7.	Which cost more to operate?	oven	electric toothbrush
8.	Which cost more to operate?	color TV	home lights
9.	Which cost less to operate?	refrigerator	washing machine
10.	Which cost more to operate?	hair dryer	water heater

"What do you call it when pigs use their washing machines?"

Name _____



DIRECTIONS: Do the problems. Use your answers to read the message.

8 X 3 = ____ M	6 X 2 = ____ O	7 X 4 = ____ V	5 X 5 = ____ U
9 X 2 = ____ R	5 X 4 = ____ A	3 X 2 = ____ E	9 X 3 = ____ L
8 X 2 = ____ Y	5 X 6 = ____ N	4 X 1 = ____ H	3 X 0 = ____ I
3 X 3 = ____ W	5 X 3 = ____ S	7 X 2 = ____ G	8 X 5 = ____ T

TO SAVE ENERGY

T

40 25 18 30 12 25 40 27 0 14 4 40 15

9 4 6 30 16 12 25 27 6 20 28 6 40 4 6

18 12 12 24.

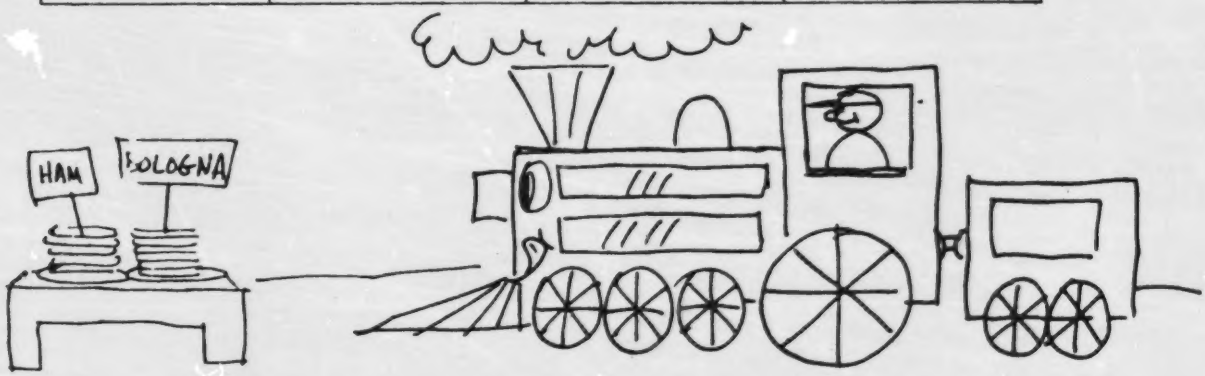
46

Name _____

Coal, oil and natural gas are fossil fuels. They are the three sources of energy most used in our society today.

DIRECTIONS: Do the problems. Use your answers to solve the riddle.

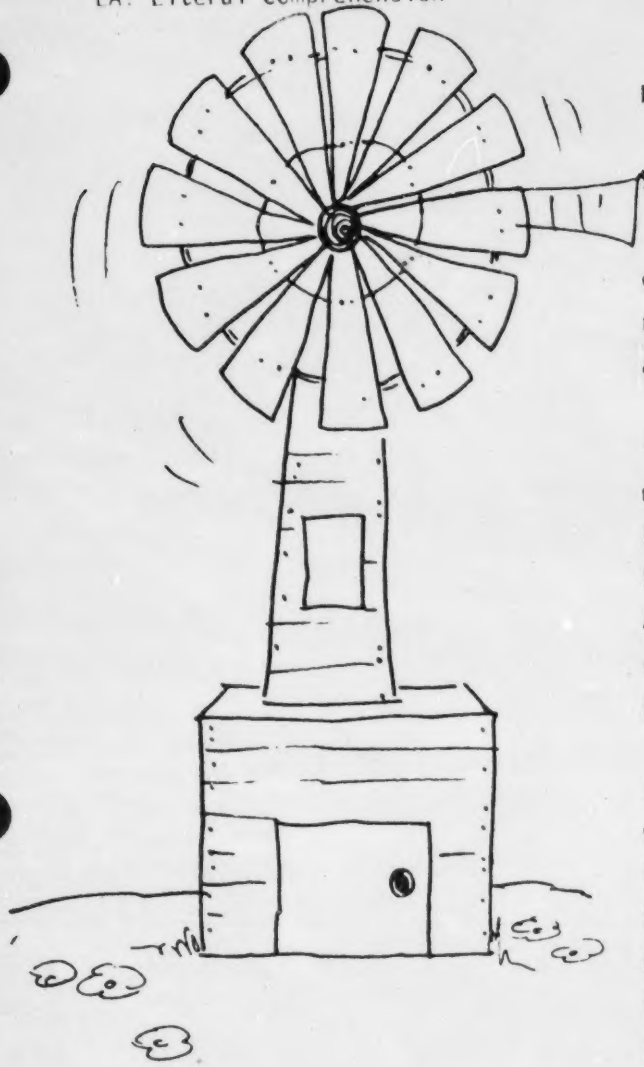
362 + 415 = A	843 + 126 = P	331 + 426 = Y	806 + 121 = B
463 + 431 = C	271 + 608 = T	540 + 319 = L	162 + 332 = S
728 + 170 = R	341 + 456 = O	846 + 120 = W	128 + 441 = U



WHAT DO STEAM ENGINES EAT?

___	___	___	___		___	___	___	___ !
894	797	777	859		894	569	879	494

LA: Literal comprehension



Name _____

Wind Power

Many people believe that the wind is a good source of power to meet our energy needs. The wind is free, cannot be used up, and does not add pollution to our environment.

For many years, windmills have been used to harness the power of the wind. Today, many windmills are providing electricity for houses, restaurants, TV stations, and other businesses. At Downey Amusement Park near Allentown, Pa., the largest windmill in the country supplies all the electricity for the park's roller coaster.

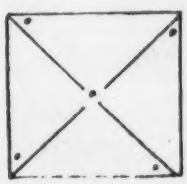
Although the wind can be an effective source of energy, it is limited to areas where the wind blows at least ten miles per hour on the average. People who live on the East or West coasts usually have this much wind. Windmills are expensive to build but they can provide free electricity with very little maintenance.

DIRECTIONS: Write the three reasons why the wind is a good source of energy.

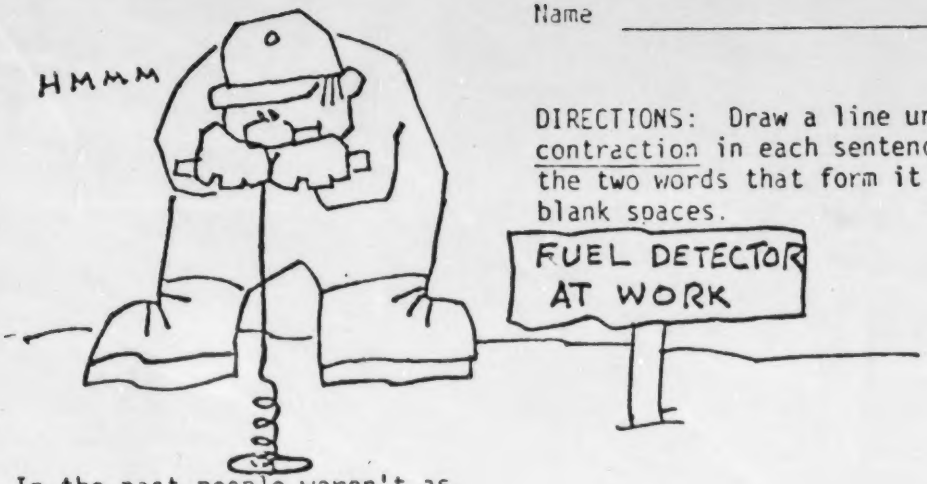
1. _____
2. _____
3. _____

Try this . . . Use this paper to make your own portable windmill.

1. Cut this paper on the dotted line.
2. Fold the square into four triangles.
3. Cut on fold lines to ½ inch from center.
4. Stick a pin through every other corner, through center, and secure to pencil eraser. Blow.



Name _____



DIRECTIONS: Draw a line under the contraction in each sentence. Write the two words that form it on the blank spaces.

1. In the past people weren't as dependent on fossil fuels. _____ _____

2. Today we've become dependent on machines to do our work. _____ _____

3. If we use up our fossil fuels, we'll have to change the way we live. _____ _____

4. There's a limit to the amount of fossil fuels in the ground. _____ _____

5. It's important not to use more than you need. _____ _ __

6. Cars won't run without oil to make gasoline. _____ _____

7. Some people couldn't heat their homes without coal or natural gas. _____ _____

8. Without oil, we wouldn't have anything made of plastic. _____ _____

9. What would you have to do without if you didn't have oil or natural gas? _____ _____

10. We're going to have to find alternative energy sources. _____ _____

LA: Punctuation

Name _____

DIRECTIONS: Write statement or question in front of each sentence.
Use the correct punctuation at the end of each sentence.

_____ Could you live without electricity ___

_____ There would not be any electric lights ___

_____ We could use oil lamps or candles for lights ___

_____ How would we cook our food ___

_____ Long ago people used open fires or wood-burning stoves ___

_____ Don't some people still use those today ___

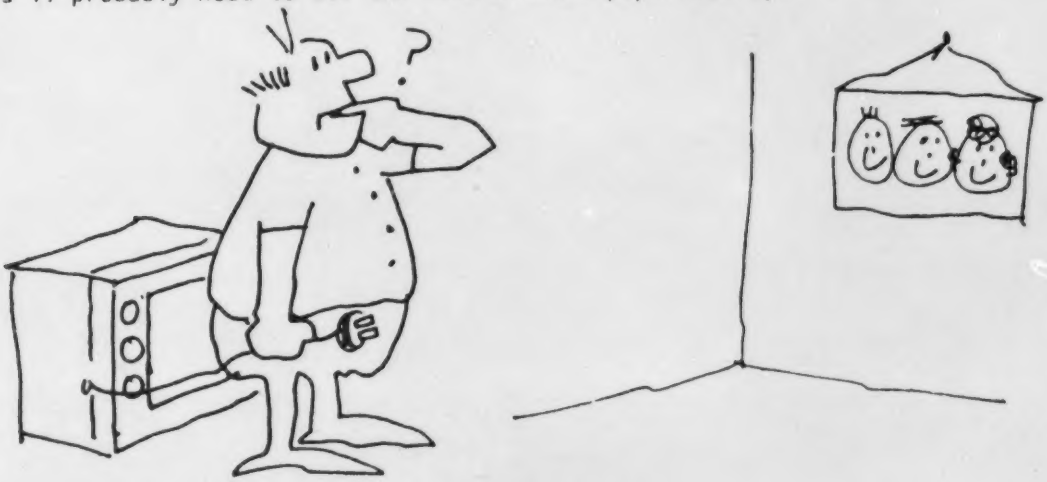
_____ What else would we have to do without ___

_____ Some water heaters operate with electricity ___

_____ How will I run my vacuum cleaner, refrigerator, hair dryer, or electric toothbrush without electricity ___

_____ Life would surely be a lot different without electricity ___

How many things can you think of that need electricity to work? Make a list.
(You'll probably need to use the back of this paper too !)



Name _____

Directions: Read the story. Answer the questions at the bottom of the page.

YOU Can Help

Did you know that people need insulation, just as houses do?

A sweater is one of the best people insulators. It traps the heat produced by our bodies. If we wear sweaters when we're cold we can save fuel by keeping the thermostat down.

Each family needs a "Shutter." A Shutter is a person who will go through the house and shut off the radios, televisions and lights that are not being used. He will also see that outside doors and windows are closed so that heat won't escape. The Shutter will help save a lot of energy.

Another way you can save energy is by using your muscle power. You can walk, ride your bike or skate board, or use your roller skates to go a short distance. Then you won't have to ask your parents to drive you and you will help save gasoline. You will also have stronger muscles.

1. How are people like houses? _____

_____

2. What is a good insulator for people? _____

3. What is a "Shutter"? _____

_____

4. What kind of power do our bodies provide? _____

_____

5. Name three ways you can help save energy. _____

_____

_____

51

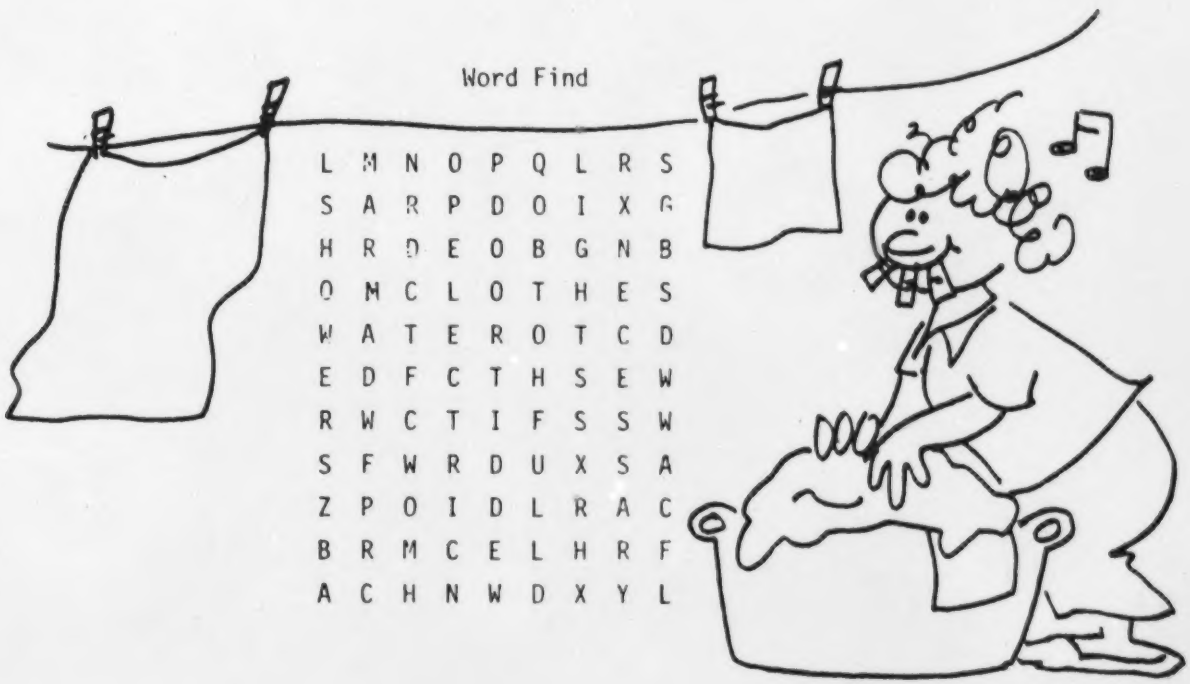
Name _____

Directions: Complete each sentence below by filling in the missing word. Then find that word in the hidden word game below.

1. Take short _ _ _ _ _ _ _ instead of baths.
2. Use a regular toothbrush instead of an _ _ _ _ _ _ _ _ one.
3. Turn off the _ _ _ _ _ _ while you're brushing your teeth.
4. Hang _ _ _ _ _ _ _ _ out to dry when the weather is sunny.
5. Open and close _ _ _ _ _ _ quickly.
6. Wash only _ _ _ _ _ loads in the dishwasher and washing machine.
7. Use the family car only when _ _ _ _ _ _ _ _ _ _.
8. Turn off all unnecessary _ _ _ _ _ _ _ when not in use.

Word Find

L	M	N	O	P	Q	L	R	S
S	A	R	P	D	O	I	X	G
H	R	D	E	O	B	G	N	B
O	M	C	L	O	T	H	E	S
W	A	T	E	R	O	T	C	D
E	D	F	C	T	H	S	E	W
R	W	C	T	I	F	S	S	W
S	F	W	R	D	U	X	S	A
Z	P	O	I	D	L	R	A	C
B	R	M	C	E	L	H	R	F
A	C	H	N	W	D	X	Y	L



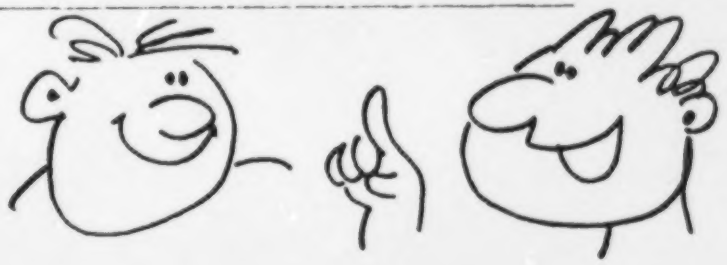
LA: Following directions

Name _____

Directions: Use the help of the Morse Code to complete these sentences.

MORSE CODE

A	.-	F	..-.	K	-.-	P	.--.	U	..-
B	-...	G	--.	L	.-..	Q	--.-	V	...-
C	-.-.	H	....	M	--	R	.-.	W	.--
D	-..	I	..	N	-.	S	...	X	-..-
E	.	J	.---	O	---	T	-	Y	-.--
								Z	--..



1. Natural gas is sent through underground _____ _____ _____ _____ _____.
   .--. .. .--. . ...

2. Most cars run on _____ _____ _____ _____ _____ _____ _____ _____.
   --. .- ... -.-- .. -. .

3. It takes lots of electricity to _____ _____ _____ _____ water to our homes.
   .--. ..- -- .--.

4. Savi_ water saves _____ _____ _____ _____ _____ _____.
   . -. . .-. --. -.--

5. _____ _____ _____ _____ help provide more energy.
   -.. .- -- ...

6. Coal is a _____ _____ _____ _____ _____ _____ fuel.
   ..-. --- ... ...-..

7. We are running out of fossil _____ _____ _____ _____ _____.
   ..-. ..- . .-.. ...

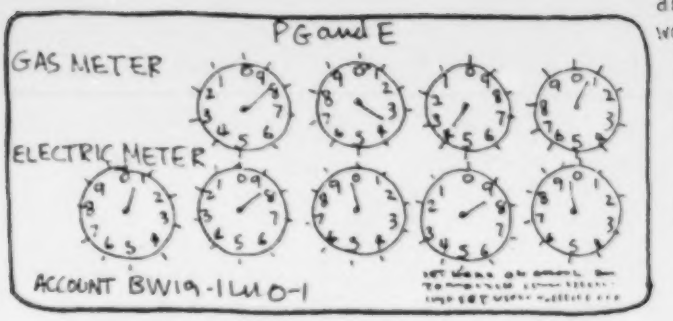
8. _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
   -.-. --- -. ... . .-. ...- .- - .. --- -.

   will help solve some of our energy problems.

LA: Vocabulary

NAME _____

Directions: Choose the word that has about the same meaning as the underlined word in the sentence.



1. We use energy from electricity and natural gas to <u>operate</u> things in our homes.
   - 0 run
   - 0 need
   - 0 hide

2. <u>Energy</u> from electricity and natural gas helps us cook our food, heat our water, and run our televisions, lights, and refrigerators.
   - 0 money
   - 0 wires
   - 0 power

3. A television set uses electricity for <u>power</u>.
   - 0 energy
   - 0 cartoons
   - 0 plugs

4. Most homes are <u>heated</u> with natural gas.
   - 0 warmed
   - 0 painted
   - 0 locked

5. Electricity <u>comes into</u> our homes through wires.
   - 0 shocks
   - 0 enters
   - 0 connects

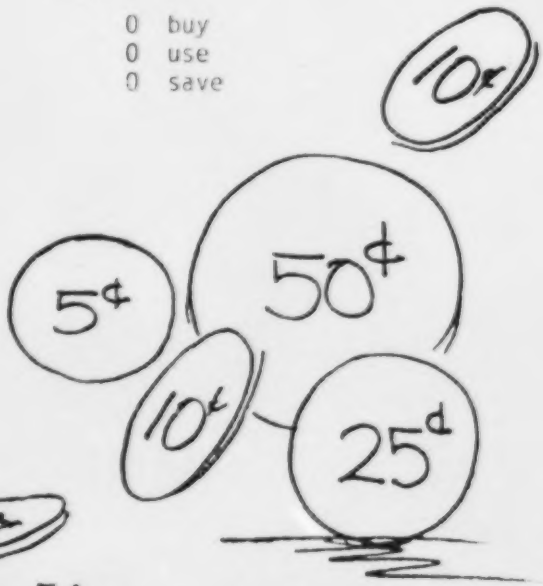
6. Pipes <u>transport</u> natural gas to our homes.
   - 0 drive
   - 0 use
   - 0 carry

7. Meters <u>tell</u> us how much gas and electricity we are using.
   - 0 read
   - 0 inform
   - 0 talk

8. People pay for the <u>quantity</u> of electricity and natural gas that they use.
   - 0 money
   - 0 barrels
   - 0 amount

9. Wasting energy is very <u>costly</u>.
   - 0 expensive
   - 0 bad
   - 0 smart

10. We should <u>conserve</u> energy so there will be enough for the future.
    - 0 buy
    - 0 use
    - 0 save



Math: Equivalents

Name _____

We know that fossil fuels (oil, coal and natural gas) are a limited source of energy. The faster we use them, the sooner they will be gone. We need to find alternate sources of energy.

What are three sources of energy that are not fossil fuels?

DIRECTIONS: Find the answer by following the directions of each sentence.

On spaces numbered:

5 and 20 -- If 35 - 7 is the same as 20 + 8, put R. If not, put W.

8 and 13 -- If 3 X 5 is the same as 5 X 3, put D. If not, put I.

6 --- If 56 ÷ 8 is the same as 8 X 8, put O. If not, put T.

16 --- If 200 - 99 is the same as 10 + 1, put N. If not, put C.

3, 10 and 17 - If 26 + 26 is the same as 50 + 2, put L. If not, put A.

1 --- If 6 X 4 is the same as 3 X 8, put S. If not, put T.

7 --- If 99 ÷ 9 is the same as 9 + 1, put M. If not, put I.

12 and 14 -- If 4 X 5 is the same as 100 ÷ 5, put N. If not, put S.

2 --- If 3 + 1 is the same as 3 X 1, put A. If not, put O.

18 --- If 73 - 42 is the same as 23 + 8, put E. If not, put Y.

15 --- If 40 X 0 is the same as 5 X 0, put U. If not, put O.

4, 9, 11, 19 - If 100 ÷ 10 is the same as 980 - 970, put A. If not, put P.

Three sources of energy that are not fossil fuels are:

___	___	___	___	___,	___	___	___	___	___,	___	___	___	
1	2	3	4	5	6	7	8	9	10	11	12	13	
							___	___	___	___	___	___	___.
							14	15	16	17	18	19	20

Name _____

Leaky faucets can waste a lot of water. To find out if you have a leak, turn everything off carefully so that no water is being used anywhere in the house. Then check the position of the water meter dial for about fifteen minutes. If it hasn't moved, you know that your house is leak free. But if it has, start checking to find that leak.

DIRECTIONS: Find out how much water can be wasted by changing pints to quarts and quarts to gallons.

Remember: 2 pints = 1 quart 4 quarts = 1 gallon

A slow leaking faucet can waste up to 5 pints of water in one hour.

1. How many pints of water are wasted in four hours?

2. How many quarts are wasted in eight hours? How many gallons is that?

3. How many gallons of water are wasted in 24 hours (one day)?

4. How many gallons of water are wasted in one month (30 days)?

Name _____

The following problems are examples of people who are saving energy, natural resources, and money too.

DIRECTIONS: Read how much they saved and write the amount in standard numerals.

1. Howard put insulation in his attic. In just one month, he saved twenty-two dollars, five dimes and three pennies on his heating bill.

   How much money did Howard save? $ _____

2. The Parks family turned their thermostat down to 65 degrees. Last month they saved three dollars, two quarters and one nickel.

   How much money did the Parks family save? _____

3. Mrs. Smith is keeping her drapes open in the daytime to allow the sun's heat in and closing them at night to keep the cold out. So far she has saved one dollar, one quarter, two dimes and two pennies.

   How much money has Mrs. Smith saved? _____

4. Bob fixed the leaky faucet in the kitchen. This month his water bill was one dollar, six dimes, one nickel and three pennies less.

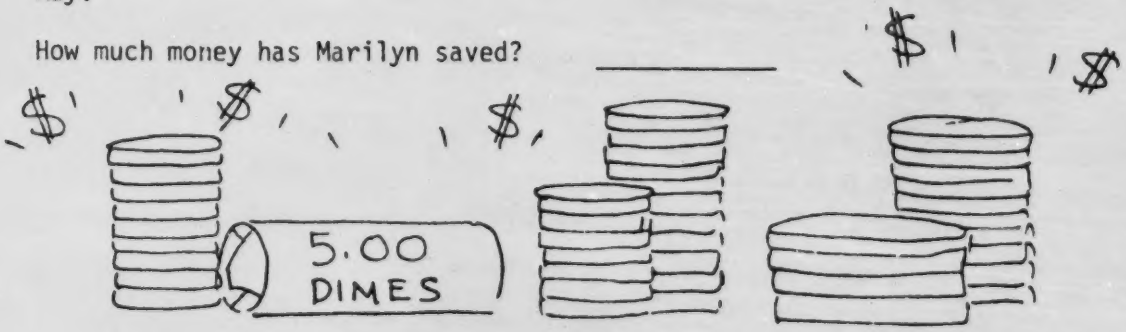
   How much has Bob saved? _____

5. Everyone in the Jones family is saving electricity by turning out lights, watching less TV, and using fewer electrical appliances. They have saved seven dollars, one nickel and one penny in the first three months.

   How much has the Jones family saved? _____

6. Marilyn is hanging her clothes outside on a clothesline to dry instead of using the clothes dryer. She has saved two dollars and four pennies since May.

   How much money has Marilyn saved? _____



Name _____

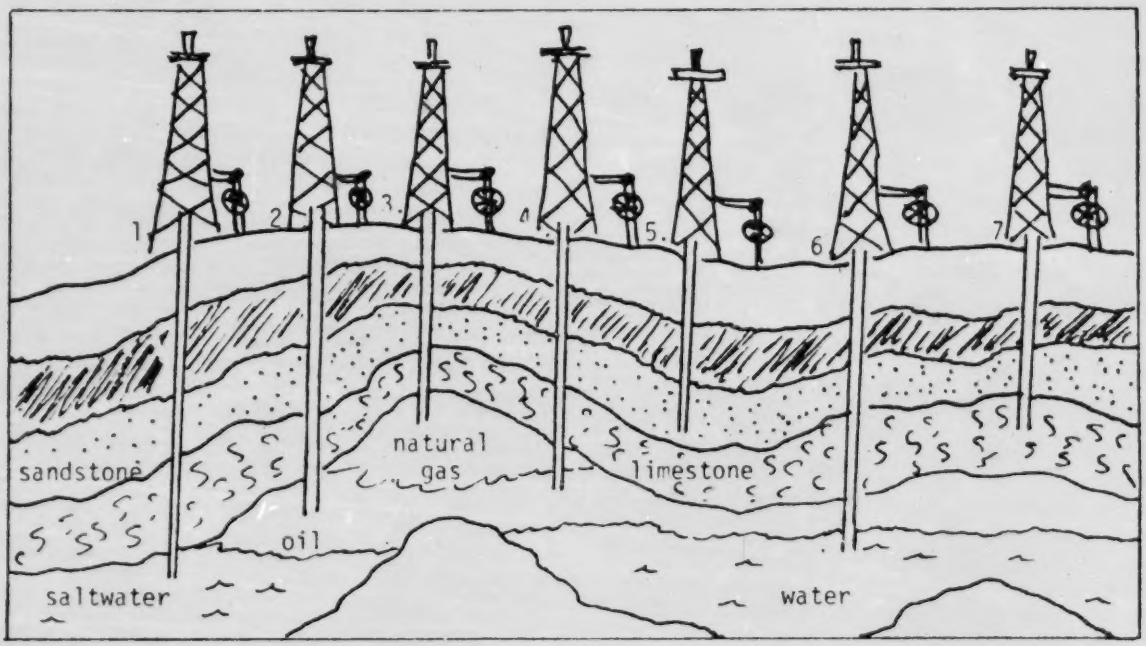
Fossil Fuels

Fossil fuels began forming in the earth many millions of years ago. This was a time when the earth was covered by many warm, shallow oceans and dinosaurs and other prehistoric plants and animals lived. As these plants and animals died, they sank to the ocean floors and decayed into sludge. These layers of sludge were quickly covered by mud. As the weight of the water and mud pressed down on the sludge, it began to change into the fossil fuels which we call coal, oil and natural gas.

This whole process took millions of years. During this period of time, the surface of the earth was constantly changing, creating mountains, deep oceans and other land forms. The mud layers became different types of rock, and pools were formed which trapped the oil and natural gas.

Today, some fossil fuel deposits are found near the earth's surface while others are buried deep under the ground. Scientists are constantly looking for new places to drill for oil and natural gas. It often costs millions of dollars to drill for oil and there is only one chance in nine that oil will be found.

DIRECTIONS: Look at the diagram below. Tell what you would expect to find from drilling each well.



Well No. 1 _____ No. 2 _____ No. 3 _____

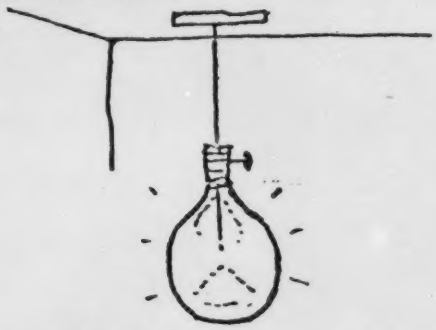
No. 4 _____ No. 5 _____ No. 6 _____

No. 7 _____

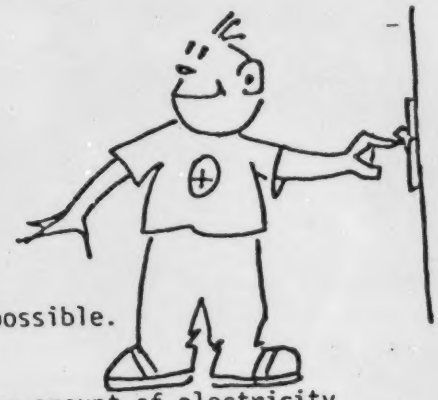
Why don't we drill wells to find coal?

LA: Verb tense

Name _____



DIRECTIONS: Draw a line under the correct verb form to complete each sentence below.

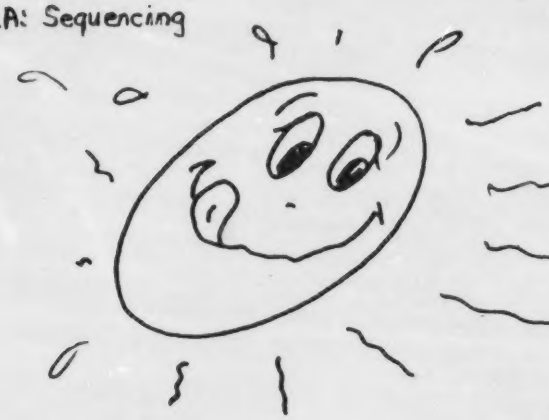


Ways of Saving Energy with Lighting

1. Turn off lights when you leave / leaving a room.
2. Fluorescent lights should be use / used whenever possible.
3. Th- · give / gives four times the light for the same amount of electricity.
4. Fluorescent lights will also last / lasting ten times as long and produce less waste heat.
5. Dust / Dusts light bulbs often.
6. Dirt and dust absorb / absorbs light and waste energy.
7. Turning / Turn off all outdoor lights not necessary for safety or security.
8. L. npshades with white liners will reflect / reflects more light.
9. Don't leave / left unnecessary lights burning when gone at night.
10. Use / Using automatic timers which will turn different lights on for short periods of time and make the house look 'lived in'.
11. Remember, the wattage of a bulb does not measure / measures the amount of light it gives, but rather the electricity needed to light it.
12. Light is measured in lumens, which can be found / find on each bulb package.

59

LA: Sequencing



Name _____

We know that most of the energy we use today comes originally from the sun. Put numbers in front of the following sentences to show the order in which they happen.

Fossil Fuel Energy

___ Heat and pressure over a long period of time change decaying plants and animals into coal, oil, and natural gas.

1. Light and heat from the sun provide life materials for growing plants and animals.

___ Fossil fuels are refined to provide energy for machinery.

___ Plants and animals die and decay.

___ Man drills wells and digs deep into the earth to uncover fossil fuels.

Hydroelectric Energy

___ Turbines generate electricity for power.

___ Rain falls and fills rivers and streams.

___ Heat from the sun evaporates water from oceans and lakes.

___ Evaporated water forms rain clouds.

___ Dams on rivers trap water and use water flow to turn turbines.

Wind Energy

___ Heat from the sun warms the air.

___ Windmills can be used to pump water or generate electricity.

___ As warmed air rises, cold air fills its space causing wind currents.

___ Moving wind turns large blades on windmills.

Name _____

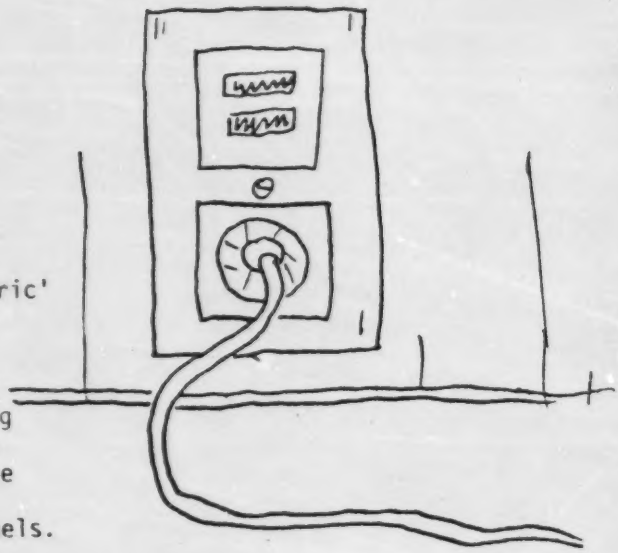
ELECTRICITY

We use electricity everyday for light, heat and power. Where does this electricity come from?

Electricity is made by man by moving large magnets around each other. These huge magnets are parts of machines we call generators or turbines. But, electricity is not a natural resource. It takes some kind of energy to start the generators or turbines moving.

If this energy comes from water power, such as waterfalls or water stored behind dams, we call the electricity that is made 'hydroelectric' power.

Some generators are moved by steam power. Water is heated by burning fossil fuels - oil or coal - or in nuclear power plants by splitting uranium atoms to produce heat. The steam rushes through pipes and turns the generators to produce the electricity. About 90% of the electricity generated today is produced by burning fossil fuels.



Directions: Write the names of four natural resources which can be used to generate electricity.

_____ _____

_____ _____

Try this...

Make a chart to show what you use electricity for in one day. Use these headings.

USE	PURPOSE
(Example: Electric can opener)	(Open dog food can)

How many of these uses could you do without electricity?

LA: *Identifying sentences*

Name _____

DIRECTIONS: Write 'statement', 'command', or 'question' in front of each sentence below. Put an X on the space if it is not a sentence. Be sure to complete sentences with the correct punctuation.

_____ 1. Ways to save energy at home

_____ 2. Turn off TV, stereo or radio when no one is listening or watching

_____ 3. You shouldn't use your television set to keep you company or put you to sleep

_____ 4. Standing with the refrigerator door open while you decide what you want

_____ 5. How does covering pots with lids shorten cooking time

_____ 6. Run dishwashers only with full loads

_____ 7. Planting trees outside will shade your house and keep it cooler

_____ 8. Turn lights off when you leave a room

_____ 9. Why will washing clothes in cold water save energy

_____ 10. Hanging clothes to dry on outside clotheslines on sunny days

_____ 11. Taking short showers instead of baths will save water and energy too

_____ 12. Close draperies during hot summer days to keep the heat out and the cool air in

LA: Comprehension

Name _____

Directions: Read the experiment below. Answer the questions at the bottom of the page.

BATH OR SHOWER?????

You will need a bathtub and a yardstick to do this experiment. The experiment will show that we would save a lot of energy and water if people took showers instead of baths.

Begin the experiment by taking a bath. Fill up your bathtub with water as you usually do. But, before you go in, measure the depth of the water with your yardstick. Write your measurement down. The next day (or whenever you need it) take a shower. Before you turn the water on, close the drain. This will keep your shower water in the bathtub. After you have finished with your shower, get the yardstick and measure the water used during your shower. Write your measurement down. Then compare the two measurements.

You should discover that you used less water when you showered. That means you saved water and the energy it took to heat the hot water.

Answer the questions.

1. What materials do you need for this experiment?

_____

2. What is the first step in this experiment?

_____

3. What is the second step in this experiment?

_____

4. What is the final step in this experiment?

_____

5. What can you learn from this experiment?

_____

_____

Name _____

CAUSE AND EFFECT

In your readings you will find cause and effect situations. The cause tells the reason something happened. The effect tells what happened.

Directions: Write the letter of the effect in front of the cause.

Example: Cause — X The boy burned his finger. Effect — X. He was playing with matches.

Cause	Effect
____ The batteries were dead.	A. The milk turned sour.
____ He forgot to fill the car tank.	B. We had a poor television picture.
____ It rained heavily for a week.	C. The flashlight wouldn't work.
____ The wind blew our antenna off the roof.	D. City Park looked messy.
____ Our refrigerator was unplugged.	E. Dad's car ran out of gas.
____ Someone left the door open.	F. The river overflowed.
____ People threw litter around.	G. Our house is cold.
____ Students turn the lights out.	H. The bay was polluted.
____ An industry emptied chemicals into the bay.	I. Heat is not escaping up the chimney.
____ Dad closed the damper in the fireplace.	J. The school is saving energy.
____ We are running out of fossil fuels.	K. The cost of oil, coal and natural gas is increasing.

Name _____

Directions: Use the information from the table to work out the problems.

Appliance	Average Cost
TV (black and white) --	1 cent per hour
TV (color) ----------	3 cents per hour
Washing machine	
Cold water only ----	4 cents per load
Warm water ---------	10 cents per load
Hot water ----------	23 cents per load
Range	
Oven ---------------	19 cents an hour
Surface ------------	18 cents an hour

1. How much does it cost to watch a color TV for 4 hours?

2. If you watch a color TV for 4 hours every night for one month (30 days), how much will it cost?

3. If you wash a load of clothes in cold water instead of hot water, how much will you save on each load?

4. If you wash a load of clothes every day in cold water instead of hot water, how much will you save in one month (30 days)?

5. Mrs. Smith paid $1.09 for a package of cake mix. The cake was baked for one hour. How much did it cost to purchase the cake mix and bake it?

6. Mrs. Smith cooked a $3.50 stew for three hours on top of her range. She served the stew for dinner and the cake for dessert. How much did the meal cost?

65

NAME _____

Directions: Read the problem. Choose the correct answer.

1. A sewing machine costs less than $10 a year to operate. A dishwasher costs less than $50 a year to operate. A refrigerator costs more than $50 a year to operate. Which thing costs the least to operate?

   0 sewing machine
   0 dishwasher
   0 refrigerator

2. A refrigerator costs twice as much to operate than a dishwasher. If the dishwasher cost $40 a year to run, how much will the refrigerator cost?

   0 $20
   0 $40
   0 $80

3. Betty's electric toothbrush costs two cents to operate. Her hair dryer costs five cents to operate. How much more does the hair dryer cost than the electric toothbrush? To find out, you should find the answer to

   0 .02 + .05 =
   0 .02 X .05 =
   0 .05 - .02 =

4. Joe's waterbed cost $15 a month to keep warm. How much does Joe have to pay for 3 months? To find out, you should find the answer to

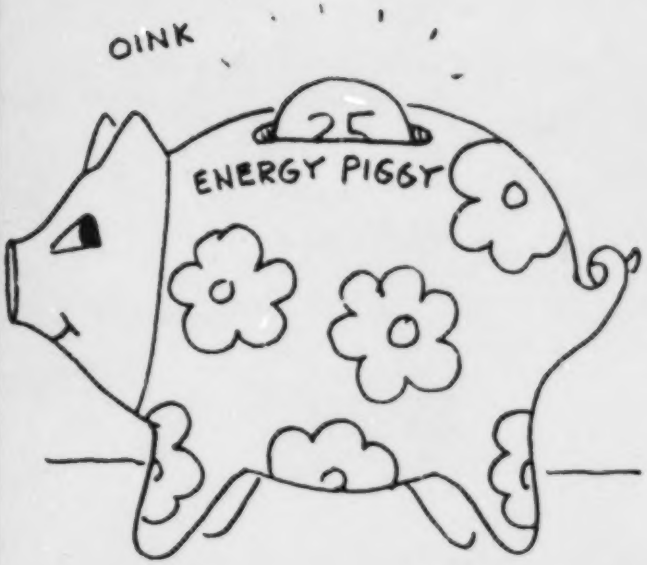
   0 $15 - 3 =
   0 $15 X 3 =
   0 $15 ÷ 3 =

5. A color television set costs 10 cents an hour to watch. How much will it cost to watch for 6 hours?

   0 $ .06
   0 $ .60
   0 $6.00

6. A refrigerator costs about $20 per month to operate. An electric stove costs about $10 per month to operate. A dishwasher costs about $5 per month to operate. How much will it cost to operate the refrigerator, stove, and dishwasher for one month?

   0 $35
   0 $25
   0 $30



Name _____

Directions: Fill in the answers at the bottom of the page.

1. If a carving knife uses 18 watt hours of electricity in 10 minutes, how many watt hours will it use in 70 minutes?

A. 98 C. 126
B. 1098 D. 100

2. A refrigerator costs about $25 per month to operate. An electric stove costs about $15 per month to operate. A dishwasher costs about $5 per month to operate. How much will it cost to operate theses three appliances for 3 months?

A. $45 C. $98.57
B. $375 D. $135

3. Assume that a severe energy crisis now exists. Your monthly use of 574 kilowatts of energy must be reduced by 50%. How many kilowatts are you now allowed each month?

A. 287 C. 278
B. 524 D. 445

4. In October, Mrs. Brown's electrical bill was $47.62. In November, she paid $56.25. In December, the bill was $67.43. What was the average of the three month's bills?

A. $57.10 C. $36.44
B. $171.30 D. $89.26

5. If a hot water heater holds 40 gallons of water and 5 gallons are used for a shower, what fraction of water is left in the water heater?

A. 1/3 C. 7/8
B. 1/5 D. 5/40

- -

Fill in your answers here.

	A	B	C	D		A	B	C	D
1.	0	0	0	0	4.	0	0	0	0
2.	0	0	0	0	5.	0	0	0	0
3.	0	0	0	0					

LA: Antonyms

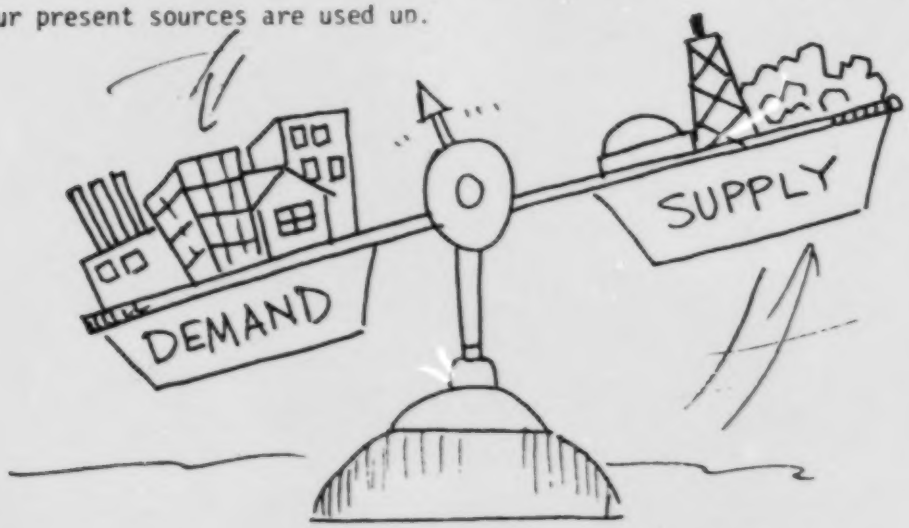
Name _____

DIRECTIONS: Antonyms are words that have opposite meanings. Use the word box to write antonyms for the words in parentheses.

limited	before	conserve	waste
more	necessary	future	most

The Energy Balance - Supply and Demand

1. Today we are demanding even (less) _____ power for industry, homes and transportation.
2. Energy is (needless) _____ to operate all our machines.
3. Fossil fuels, like coal and oil, are our (least) _____ important sources of energy.
4. These fossil fuels are (everlasting) _____.
5. We must not (save) _____ the amounts of fuels which are left.
6. Everyone should try to (waste) _____ energy whenever possible.
7. We also need to develop new sources of energy for the (past) _____.
8. Our life style depends on finding these new sources (after) _____ our present sources are used up.



LA: Adverbs

Name _____

DIRECTIONS: Adverbs tell <u>how</u>, <u>when</u>, or <u>where</u> about a verb.

In the sentences below:
Draw one line under the verb,
Draw two lines under the adverb, and
Write HOW, WHEN, or WHERE the adverb describes the verb.

Carole's family is trying to save energy. Here are some of the things they did to conserve energy and our natural resources.

1. <u>First</u>, they <u>put</u> insulation in the attic and walls. *when*
2. The parents drove slowly to save gasoline. _____
3. Carole rode her bike often. _____
4. They wisely used solar heating for their swimming pool. _____
5. Carole's dad carefully fixed all the leaky faucets. _____
6. The family always took short showers. _____
7. They turned the thermostat lower. _____
8. Sometimes they recycled bottles and cans. _____
9. Everyone closed doors quickly to save heat. _____
10. The family worked hard to save energy. _____

LA: Spelling

Name _____

Directions: Choose the correct spelling for the word that completes the sentence. Fill in your answers at the bottom of the page.

1. The United States has been listed as the world's largest producer of electricity based on the chart labeled "World's Largest Electricity Producing _____".

A. Countries
B. Countrys
C. Countrey's
D. Countrie's

2. The country of Sweden has the lowest electrical production _____.

A. capecity
B. capicity
C. capacity
D. capacite

3. The state of Alaska has _____ the most in its' production of oil.

A. increeced
B. increased
C. inkreaced
D. encreeced

4. In 1970 the _____ American car was driven 9978 miles.

A. avarage
B. average
C. avrage
D. averaje

5. In 1975, the gas _____ of the average American car began to improve.

A. milage
B. millage
C. milege
D. mileage

6. Coal is the _____ which produces the most electricity in the United States.

A. sorce
B. sourse
C. sorse
D. source

7. Oil was the most used _____ source in 1950.

A. eneergy
B. energy
C. inerge
D. energee

8. The use of coal as an energy source increased the most in its _____ between 1970 and 1975.

A. usage
B. useage
C. usege
D. usaege

9. The highest price paid for a _____ of oil between the years 1965 and 1980 was $29.79.

A. barrel
B. barrol
C. barel
D. barael

10. In 1978 the United States first _____ the amount of oil it imported.

A. reeduced
B. reduceed
C. reduced
D. redooced

- -

Mark your answers here.

	A	B	C	D		A	B	C	D
1.	0	0	0	0	6.	0	0	0	0
2.	0	0	0	0	7.	0	0	0	0
3.	0	0	0	0	8.	0	0	0	0
4.	0	0	0	0	9.	0	0	0	0
5.	0	0	0	0	10.	0	0	0	0

LA: Vocabulary

Name _____

Directions: Choose the word that has about the same meaning as the underlined word in the sentence. Fill in the correct answers at the bottom of the page.

1. There are several <u>forms</u> of energy, such as light, heat, electrical, mechanical, nuclear and chemical.
   A. sources
   B. powers
   C. kinds

2. Any form of energy can be <u>converted</u> into any other form.
   A. changed
   B. moved
   C. pushed

3. Electricity is the transfer of energy from one atom to the next in a <u>continuous</u> flow.
   A. broken
   B. unbroken
   C. large

4. Batteries and generators <u>provide</u> most of the electricity we use.
   A. neglect
   B. supply
   C. want

5. Batteries <u>produce</u> electricity through a chemical reaction.
   A. shorten
   B. reduce
   C. create

6. The flow of electrons produced by batteries always goes in the same direction, producing what is called "<u>direct</u> current".
   A. straight
   B. broken
   C. strong

7. Generators are machines that convert mechanical <u>energy</u> into electrical energy.
   A. power
   B. engines
   C. parts

8. This is <u>generally</u> done by spinning a magnet inside a coil of wires.
   A. usually
   B. always
   C. never

9. The <u>rotating</u> magnet produces a moving magnetic field.
   A. exploding
   B. turning
   C. powerful

10. The magnetic field <u>creates</u> the push or charge that causes the flow of current into the wires.
    A. destroys
    B. makes
    C. clears

Mark your answers here.

	A	B	C
1.	0	0	0
2.	0	0	0
3.	0	0	0
4.	0	0	0
5.	0	0	0

	A	B	C
6.	0	0	0
7.	0	0	0
8.	0	0	0
9.	0	0	0
10.	0	0	0

71

FATS

Name _____

FACT OR OPINION?

As you read you will come across some statements that are facts and some statements that are opinions. A fact can be proved. It can be checked in a book, magazine or other source. An opinion is what someone feels, believes or thinks.

Sometimes we use words to help the readers decide whether a statement is a fact or an opinion. "I think," "it appears to me,""in my opinion," and "it seems to me", are all statements we give the readers as an opinion.

Directions: Read the sentences below. Write "F" if it is a fact. Write "O" if it is an opinion.

_____ The fact is that electricity is expensive.

_____ Electricity helps make our lives easier.

_____ I believe recycling is fun.

_____ Recycling is important because it helps save energy.

_____ Dams help us by providing electricity, drinking water, and recreation areas.

_____ In my opinion, we have enough dams.

_____ Radiation is defined as energy moving through spaces as invisible waves.

_____ It appears to me that we have to learn more about radiation.

_____ I think windy days are fun because I can fly my kite.

_____ The wind was one of the first sources of energy.

_____ You use less water and energy when you take a short shower than when you take a bath.

_____ It seems to me it takes less time to take a shower than to take a bath.

_____ Everyone can help to save energy.

LA: Contractions

Name _____

DIRECTIONS: Draw a line under the contraction in each sentence. Write the two words that form it on the blank lines.

Tips To Save Gasoline

1. Warming up a car engine isn't necessary. _____ _____
2. It wastes gas and doesn't make the engine run any better. _____ _____
3. It's true that the faster a car goes, the more gas it uses per mile. _____ _____
4. We'll save the most gas when we drive between 35 and 40 miles per hour. _____ _____
5. You shouldn't tie luggage or equipment on the top of your car. _____ _____
6. They'll cause wind resistance which lowers your gas mileage. _____ _____
7. The heavier your car is, the more gasoline you'll need. _____ _____
8. Every 400 pound weight reduction means you're improving performance by one mile per gallon. _____ _____
9. Plan wisely and don't take unnecessary trips. _____ _____
10. We can't afford to waste gasoline. _____ _____

73

Math: Decimals, fractions

Name _____

Many people do not understand what the energy crisis is all about. A recent study of 1,300 adults between the ages of 26 and 35 showed the following results.

DIRECTIONS: Find out how many people the percentages represent. First, change the percents to decimals. Then, multiply by 1,300 which is the actual number of people who answered the questions.

1. Only 46% of the people knew that crude oil produced the largest amount of energy used in the United States. How many people knew this?

46% = .46

1300
X .46

_____ people knew that crude oil produced the largest amount of energy.

2. Only 14% of the people knew that coal is the main fuel source used to produce electricity. How many people knew this?

_____ people knew that coal is the fuel used most to produce electricity.

3. Just 16% of the people knew that gasoline can be made from coal as well as oil. How many people was that?

_____ people knew that gasoline can be made from coal.

4. Only 49% of the people knew that the fossil fuel we have the most of is coal. How many people knew this?

_____ people knew that coal is the largest reserve of fossil fuels.

5. Only 33% realized that Americans, who make up 6% of the world's population, use more than 30% of its energy. How many people realized this?

_____ people were aware that we use this much energy.

Math: Fractions, **reducing**

Name _____

Twenty-five percent of all the energy used in the United States goes for transportation. This is ¼ of all our energy needs!

DIRECTIONS: Reduce the fractions to their lowest terms. Use your answers to solve the riddle.

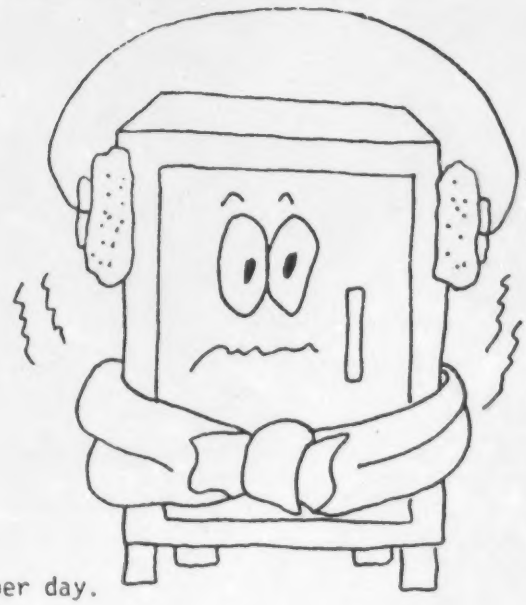
$\frac{6}{8} = \frac{\quad}{\quad} = N$	$\frac{4}{24} = \frac{\quad}{\quad} = R$	$\frac{2}{6} = \frac{\quad}{\quad} = H$	$\frac{2}{18} = \frac{\quad}{\quad} = Y$
$\frac{4}{6} = \frac{\quad}{\quad} = A$	$\frac{1}{15} = \frac{\quad}{\quad} = P$	$\frac{3}{6} = \frac{\quad}{\quad} = O$	$\frac{12}{20} = \frac{\quad}{\quad} = T$
$\frac{4}{10} = \frac{\quad}{\quad} = G$	$\frac{2}{8} = \frac{\quad}{\quad} = I$	$\frac{10}{100} = \frac{\quad}{\quad} = U$	$\frac{6}{6} = \frac{\quad}{\quad} = B$

WHAT IS A HISTORY OF CARS CALLED?

___	___	___	___	___	___	___	___	___	___	___	___	___	___	___
$\frac{2}{3}$	$\frac{3}{4}$	$\frac{2}{3}$	$\frac{1}{10}$	$\frac{3}{5}$	$\frac{1}{2}$	1	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{2}{5}$	$\frac{1}{6}$	$\frac{2}{3}$	$\frac{1}{15}$	$\frac{1}{3}$	$\frac{1}{9}$

Math: Multiplication, decimals

Name _____



Today many people have food freezers in their homes. They are used to store foods at a low temperature to prevent them from spoiling.

There are two types of food freezers. One is called 'frostless' or 'frost-free' which means that it automatically defrosts (removes the frost and ice). The other is called a 'manual defrost' which means you need to turn it off and remove the frost and ice by hand.

Use the chart below to find out how much it costs for electricity to operate both kinds of freezers.

One kilowatt (kwh) costs $ .08.

A frostless freezer (15 cu. ft.) uses 5 kwh per day.

A manual defrost freezer (15 cu. ft.) uses 3 kwh per day.

How much does it cost to operate a <u>frostless</u> freezer for:

One day _____

One month (30 days) _____

One year (365 days) _____

How much does it cost to operate a <u>manual defrost</u> freezer for:

One day _____

One month (30 days) _____

One year (365 days) _____

Which one costs less to operate? _____

How much less:

Per day _____

Per month _____

Per year _____

Name _____

SAVING ELECTRICITY MAKES "CENTS". . . .

This is an energy chart from the PG & E (Pacific Gas and Electric Company) which shows how many kilowatts (kwh) it takes to use these electric appliances.

Using the 1/1/82 rate of $ .08 per kwh, figure out how much it costs to operate these appliances. Put a check mark in front of the ones you use in your home.

	Appliance	Estimated Use	Energy Cost
___	Coffee Maker	1/4 kwh per pot	_____ per pot
___	Deep fryer	1 kwh per hour	_____ per hour
___	Frying pan	1/2 kwh per hour	_____ per hour
___	Oven, self cleaning	10 kwh per clean	_____ per clean
___	Range	1 kwh per meal	_____ per meal
___	Refrigerator, frostless	5 kwh per day	_____ per day
___	Refrigerator, manual	2 kwh per day	_____ per day
___	Waffle Iron	1/2 kwh per use	_____ per use
___	Clothes dryer	6 kwh per load	_____ per load
___	Washing machine	3 kwh per load	_____ per load
___	Water heater	26 kwh per day	_____ per day
___	Waterbed heater	6 kwh per night	_____ per night

Answer the following questions.

Which costs more to operate, a frostless or manual refrigerator?

_____

How much does it cost to heat a waterbed for one month (30 days)? _____

How much does it cost to heat water for your house for one month (30 days)?

_____

ANSWERS - Pages 10-26

Page 10

Walking

Page 12

Help save energy.

Page 13

Take short showers.

Page 15

Movie projector, telephone, clock

Page 16

TV vacuum cleaner, flashlight, refrigerator, clock

Page 17

Saving energy saves money, too!

Page 19

Hanging clothes outside, walking, using breeze for cooling

Page 20

We should all try to save energy.

Page 21

move	light
hea.	heat
hc	move

Page 22

She is turning off the light.
He is walking to school.
He is taking a short shower.

Page 23

Wear a sweater

Page 24

Jack, Steve, Mike, Bill, Brian

Page 25

day, sun, energy, water, fuels, gas, resources

Page 26

stove, car, light, drapes, energy, money

ANSWERS - Pages 27 - 34

Page 27

save energy

Page 28

Turn the heat down, wear a sweater.

Page 29

Oil, coal and natural gas

Page 30

1. the best energy saver in town
2. electric toothbrush
3. he was Jimmy's pet
4. fool his friends

Page 31

1. Benjamin Franklin
2. Pacific Gas and Electric Company
3. We
4. Smith's
5. Smith
6. Maytag
7. Washing
8. Green Street
9. Bob Smith
10. Smith
11. Stevens
12. Cupertino Oaks Theater

Page 32

school
paper
house
lights
recycling
bottles
drain

Page 33

1. waste
2. not
3. new
4. so
5. know
6. great
7. see
8. Some
9. through
10. way

Page 34

Jenny's team spell 4 words correctly.
Marilyn's team spelled 6 words correctly.
Marilyn's team won the spelling bee.

1. energy
2. electricity
3. power
4. insulation
5. thermostat
6. lights
7. conserve
8. recycle
9. fuel
10. furnace

ANSWERS - Pages 35 -39

Page 35

1. dishwasher
2. fan
3. freezer
4. hair dryer
5. lights
6. radio
7. refrigerator
8. stereo
9. stove
10. television

Page 36

1. are
2. turn
3. asking
4. leave
5. Open
6. turning
7. starting
8. looking
9. Take
10. keep
11. leave
12. recycle
13. Close
14. turning
15. save

Page 37

1. oven
2. home lights
3. hair dryer
4. refrigerator
5. color TV
6. water heater
7. oven
8. home lights
9. washing machine
10. water heater

Page 38

Turn out lights when you leave the room.

Page 39

coal cuts!

ANSWERS- Pages 40-44

Page 40

1. The wind is free.
2. The wind cannot be used up.
3. The wind does not add pollution to our environment.

Page 41

1. were not
2. we have
3. we will
4. There is
5. It is
6. will not
7. could not
8. would not
9. did not
10. We are

Page 42

1. question
2. statement
3. statement
4. question
5. question
6. question
7. question
8. statement
9. question
10. statement

Page 43

1. People and houses both need insulation.
2. A sweater is a good insulator for people.
3. A "Shutter" is a person who will go through the house and shut off the radios, televisions and lights that are not being used.
4. Our bodies provide muscle power.
5. (answers will vary) Insulation, shutting off electrical appliances, and using muscle power.

Page 44

1. showers
2. electric
3. water
4. clothes
5. doors
6. full
7. necessary
8. lights

ANSWERS - Pages 45-49

Page 45

1. pipes
2. gasoline
3. pump
4. energy
5. dams
6. fossils
7. fuels
8. conservation

Page 46

1. run
2. power
3. energy
4. warmed
5. enters
6. carry
7. inform
8. amount
9. expensive
10. save

Page 47

S	o	l	a	r,	t	i	d	a	l,	a	n	d	n	u	c	l	e	a	r.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Page 48

1. 20 pints
2. 20 quarts
3. 15 gallons
4. 450 gallons

Page 49

1. $22.53
2. $3.55
3. $1.47
4. $1.68
5. $7.06
6. $2.04

ANSWERS -Pages 50-54

Page 50

1. saltwater
2. oil
3. natural gas
4. oil
5. sandstone
6. water
7. limestone

Page 51

1. leave
2. used
3. give
4. last
5. dust
6. absorb
7. turn
8. reflect
9. leave
10. use
11. measure

Page 52

Fossil Fuel Energy	Hydroelectrice Energy	Wind Energy
3	5	1
1	3	4
5	1	2
2	2	3
4	4	

Page 53

1. water
2. coal
3. oil
4. uranium

Page 54

1. X
2. C
3. S
4. X
5. Q
6. C
7. S
8. C
9. Q
10. X
11. S
12. C

ANSWERS -Pages 55-59

Page 55

1. bathtub, yardstick
2. fill tub and measure depth
3. close drain, shower, and measure depth
4. It takes less water to take a bath than to take a shower.

Page 56

1. C
2. E
3. F
4. B
5. A
6. G
7. D
8. J
9. H
10. I
11. K

Page 57

1. $.12
2. $3.60
3. $.19/load
4. $5.70
5. $1.28
6. $5.32

Page 58

1. sewing machine
2. $80.00
3. .05 - .02 = .03
4. $45.00
5. $.60
6. $35.00

Page 59

1. C
2. D
3. A
4. A
5. C

ANSWERS -Pages 60-64

Page 60

1. more
2. necessary
3. most
4. limited
5. waste
6. conserve
7. future
8. before

Page 61

1. First , put (when)
2. drove , slowly (how)
3. rode , often (when)
4. used , wisely (how)
5. fixed , carefully (how)
6. always , took (when)
7. turned , lower (where)
8. sometimes, recycled (when)
9. closed , quickly (how)
10. worked , hard (how)

Page 62

1. Countries
2. capacity
3. increased
4. average
5. mileage
6. source
7. energy
8. usage
9. barrel
10. reduced

Page 63

1. kinds
2. changed
3. unbroken
4. supply
5. create
6. straight
7. power
8. usually
9. turning
10. makes

Page 64

1. F
2. F
3. 0
4. F
5. F
6. 0
7. F
8. 0
9. 0
10. F
11. F
12. 0

ANSWERS -Pages 65-69

Page 65

1. is not
2. does not
3. It is
4. We will
5. should not
6. They will
7. you will
8. you are
9. do not
10. can not

Page 66

1. 598
2. 182
3. 208
4. 637
5. 429

Page 67

3/4 = N	1/6 = R	1/3 = H	1/9 = Y
2/3 = A	1/15 = P	1/2 = O	3/5 = T
2/5 = G	1/4 = I	1/10 = U	1 = B

An autobiography

Page 68

frostless	manual	difference
one day $.40	one day $.24	per day $.16
one month $12.00	one month $7.20	per month $4.80
one year $146.00	one year $87.60	per year $58.40

Page 69

coffee maker	$.02 per pot	refrigerator, manual	$.16 per day
deep fryer	$.08 per hour	waffle iron	$.04 per use
frying pay	$.04 per hour	clothes dryer	$.48 per load
oven, self cleaning	$.80 per clean	washing machine	$.24 per load
range	$.08 per meal	water heater	$2.08 per day
refrigerator, frostless	$.40 per day	waterbed heater	$.48 per night

A frostless refrigerator cost more to operate
It cost $14.40 to heat a waterbed for one month
It cost $62.40 to heat water for a house for a month.

DINA SHORE's ENERGY SAVING METHODS -

Additional information for parents and teachers.

1. DINA TURNS THE LIGHTS OFF WHEN SHE LEAVES A ROOM.
   An average family of four spends $14 a month for home lighting. You can lower this cost by turning out lights in any room that is not being used. To reduce overall lighting in non-work spaces, remove one bulb out of three in multiple light fixtures - replace bulbs with a burned out one for safety. Use one large bulb instead of several small ones in areas where bright light is needed. Use fluorescent lights whenever you can.

2. DINA WALKS TO THE STORE TO SAVE GASOLINE.
   Twenty five percent of all the energy used in the United States is used for transportation. We have a limited supply of fossil fuels available and need to conserve whenever we can. Plan shopping trips weekly and try to avoid the quick trips to the store. Encourage children to walk or ride their bicycles whenever possible.

3. DINA WASHES HER CLOTHES IN COLD WATER TO SAVE ENERGY.
   With todays detergents, warm or cold water will do just as good a job on most kinds of laundry. Washing in cold water can save approximately 19¢ a load. Always wash full loads unless your washer has special settings for small loads.

4. DINA HANGS HER CLOTHES OUTSIDE AND LETS THE SUN DRY THEM.
   The average electric clothes dryer costs 52¢ a load, the average gas dryer costs 9¢ a load, the sun costs nothing.

5. DINA WEARS WARM CLOTHES IN THE HOUSE AND KEEPS THE THERMOSTAT LOW.
   You can save about 3% on your fuel costs for every degree Fahrenheit you lower the thermostat in the winter and about 1% for every degree you dial down at night. Heating and cooling costs account for over half of your home energy bill. Wearing a light, long sleeved sweater can add almost two degrees to your body temperature.

6. A WATER HEATER BLANKET SAVES ENERGY. DO YOU HAVE ONE ON YOUR WATER HEATER?
   A 1½ inch thick water heater blanket will save approximately 400 KWHs or 36 therms of gas a year. That's $36.00 for an electric water heater and $18.00 for a gas water heater.

7. DINA CLOSES THE CURTAINS TO KEEP THE HEAT IN THE HOUSE.
   Windows are the weakest part of your home's barrier against the outside world. Glass is a poor insulator. Using two panes or storm windows can lower your heating bills as much as 15%. Increase the insulation by drawing heavy drapes on cold days and nights. Weatherstripping the windows and caulking around the frame will also prevent heat loss.

8. DINA TAKES USED BOTTLES AND CANS TO THE RECYCLING CENTER.
   Recycling means reusing our trash instead of getting rid of it. This solves the problem of what to do with our trash and it also helps to save our natural resources and the energy needed to make products from scratch.

9. WHEN DINA SAVES ENERGY, SHE ALSO SAVES MONEY.
   Saving energy not only helps to conserve our natural resources, including fossil fuels, but also will directly relate to home energy bills.